NOVEMBER 3, 1958

STEEL
The Metalworking Weekly
A PENTON PUBLICATION

Construction Carries the Load

Its peak $51 billion volume in '59 will buttress the economy . . Page 42

How To Forge Molybdenum —Page 84

Why Steel Stocks Will Climb —Page 107

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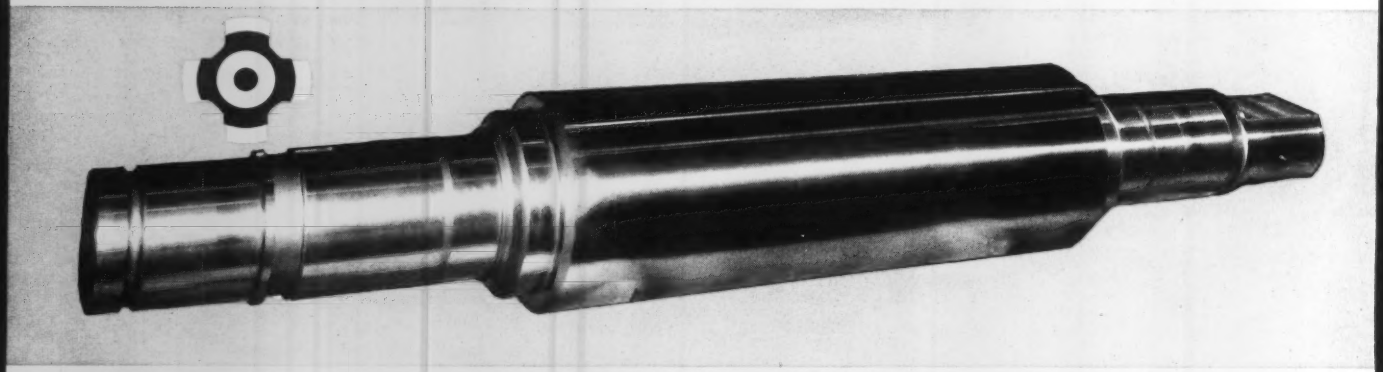
MAGALOY (nodular iron) ROLLS

FROM 7" TO 42-1/2" DIAMETER



TYPICAL APPLICATIONS

MAGALOY GRADE "A"
(Sclerescope Hardness 30-38)
Piercing Mills

MAGALOY GRADE "B"
(Sclerescope Hardness 45-55)
Blooming Mills • Bar & Billet Mills–Roughers
Rod Mills–Roughers • Plug Mills (5½" and over)
Skelp Mills • Hot Sheet Bounce Mills

MAGALOY GRADE "C"
(Sclerescope Hardness 58-65)
Merchant Mills–Leaders and Finishers
Rod Mills–Intermediate Train • Hot Strip Mills
Cont. Bar & Billet Mills–Intermediate & Finishers
Plug Mills (up to 5½")
Tube Mills–Forming & Welding, Sizing, Reelers
Straightening • Skelp Mills • Edging Mills

MAGALOY GRADE "D"
(Sclerescope Hardness 66-70)
For applications requiring higher-than-average strength and hardness penetration.

• MUCH LESS BREAKAGE • BETTER SURFACE ON ROLLED MATERIAL • LOWER COST PER TON ROLLED • WEARING QUALITY OF GRAIN ROLLS • PHYSICALS EQUAL TO CAST STEEL • UNIFORM HARDNESS PENETRATION • SUPERIOR MACHINING PROPERTIES

A SPECIALIST AND A PIONEER IN NODULAR IRON

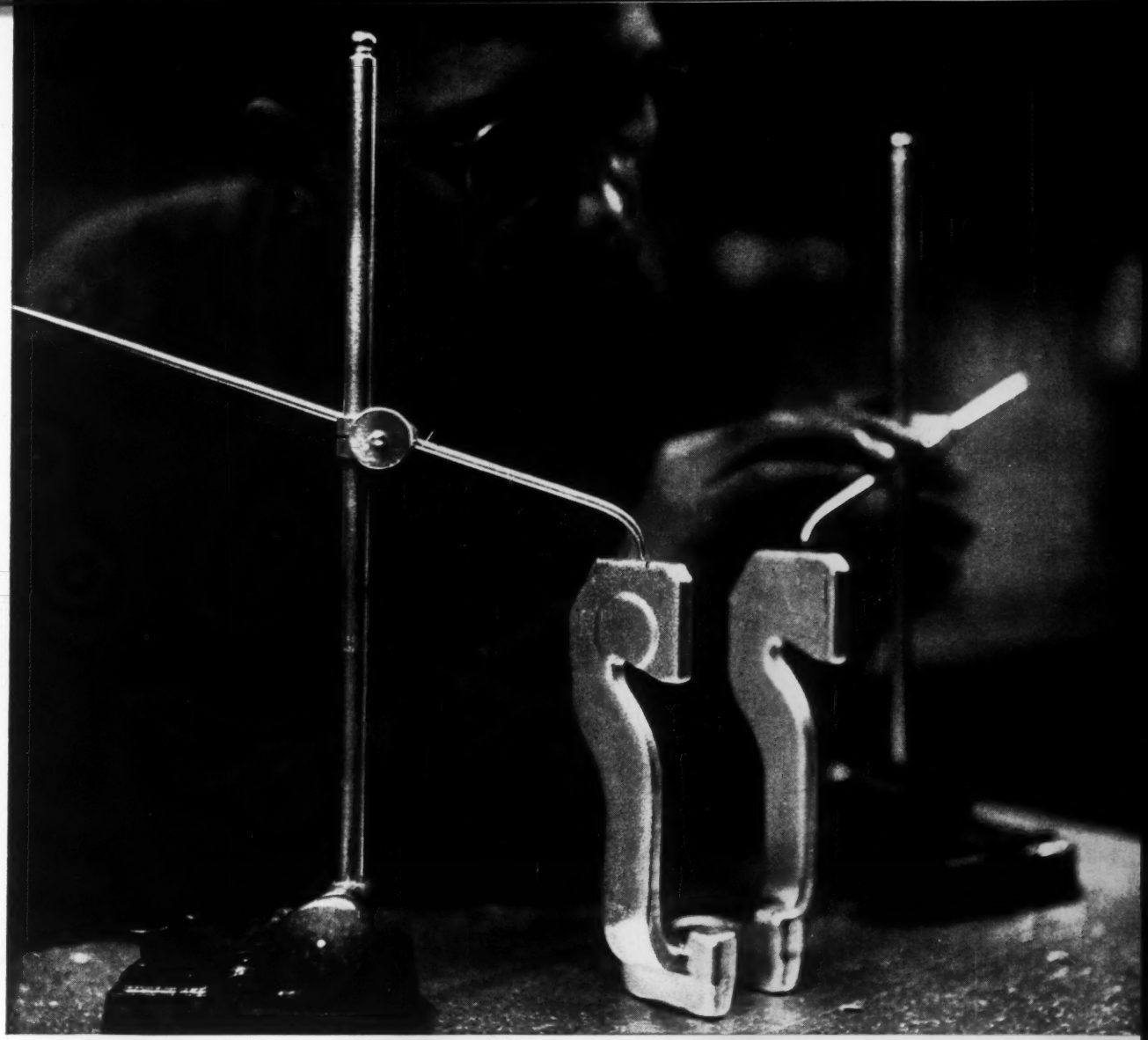
One of the first licensees (1951) for nodular iron, Aetna-Standard's foundry has built a reputation as a specialist in these rolls (trade name — Magaloy). In the making of nodular iron rolls, control of penetration is most important. So is the skill of the foundry to deliver the same uniformity of rolls order after order. As a pioneer and a specialist in nodular iron, Aetna's foundry has an excellent reputation among roll users and suppliers, particularly for penetration and uniformity of rolls.

AETNA • STANDARD

THE AETNA-STANDARD ENGINEERING COMPANY

GENERAL OFFICES: PITTSBURGH, PA. • PLANTS: ELLWOOD CITY, PA., WARREN, OHIO • RESEARCH LABORATORY: AKRON, OHIO

CHILLED AND SAND IRON ROLLS • MOLY CHILLED IRON ROLLS • ASEX GRAIN ALLOY IRON ROLLS • ALANITE GRAIN, NICKEL CHILL (A-B-C-D) • RAIL FINISHING ROLLS • MAGALOY ROLLS • TUBE MILL ROLLS & RINGS



He never takes anything for granted

It's rare that a Bethlehem inspector has to reject a piece from the drop-forge shops. Bethlehem closed-die forgings are made with great care, and are checked frequently before they reach the inspector. Nevertheless, he never takes anything for granted. His job is to *know* that the product is right before he approves and releases it prior to shipping.

Final inspection, of course, is only one of many hurdles that a Bethlehem drop forging must clear. But it's a tough one; it's bound to be. A good inspector must forget he has a heart, and think only in terms of cold, impersonal specifications.

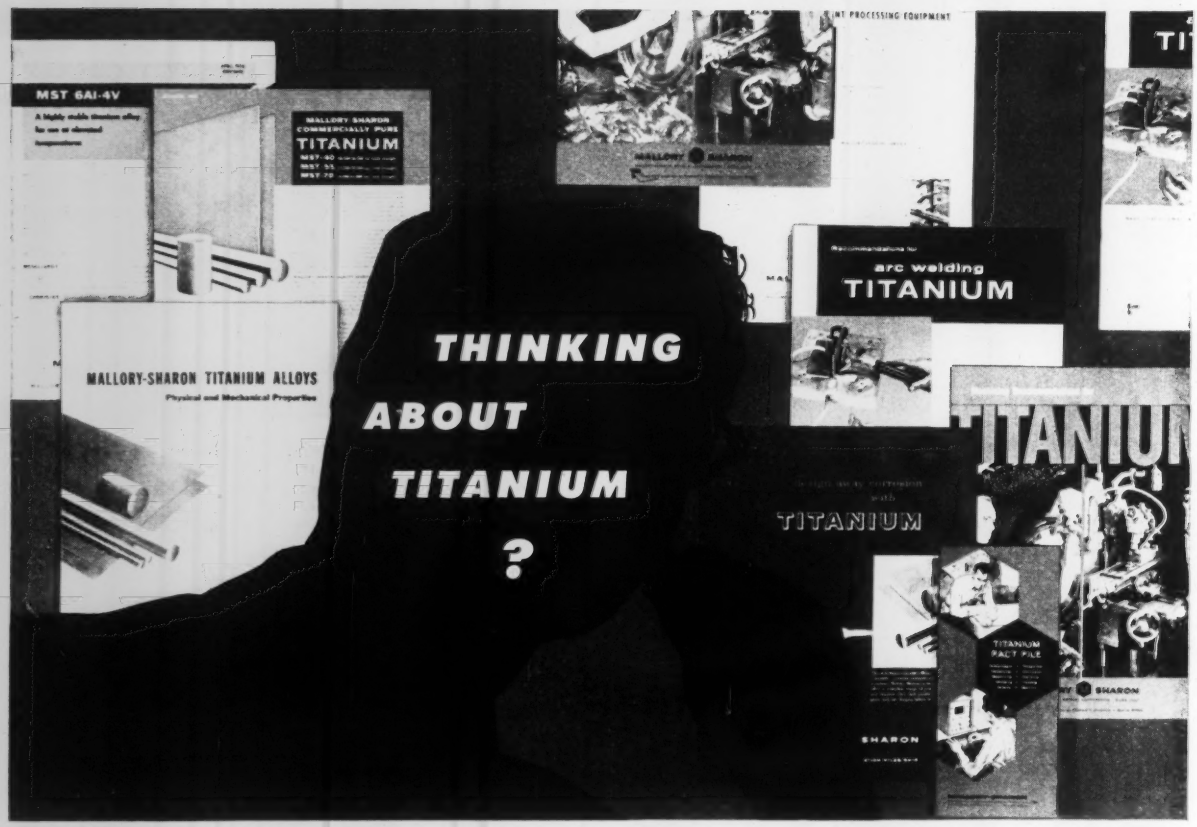
Bethlehem inspectors always know their business. And they're mighty conscientious. That's one of the reasons why you can order Bethlehem drop forgings with complete confidence.

BETHLEHEM STEEL COMPANY
BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM STEEL

BETHLEHEM STEEL



Help yourself to this helpful data.

Mallory-Sharon, as a pioneer in titanium technology and largest integrated producer of special metals, offers you a wealth of technical assistance . . . both in print and in person.

Technical bulletins on titanium's properties and advantages are available through Mallory-Sharon headquarters or sales offices. They're yours for the asking. Use coupon below.

On special problems or applications, our experienced Service Engineering group is ready to work with you. To make use of this application service, just phone or write your nearest Mallory-Sharon sales office.

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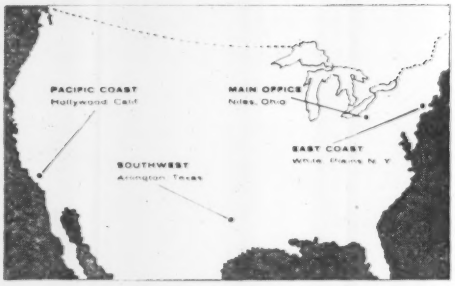
MALLORY-SHARON METALS CORPORATION • NILES, OHIO



Mallory-Sharon Sales Offices *are strategically located throughout the U.S.A. We'll gladly send you the name of our representative in office nearest you.*

- ■ Arc Welding Titanium
- ■ Machining Recommendations for Titanium
- ■ Titanium Alloys: Physical and mechanical properties
- ■ MST 6Al-4V Titanium Alloy
- ■ Commercially Pure Titanium
- ■ Corrosion Properties of Titanium
- ■ Titanium Fact File

Mallory-Sharon Metals Corporation
Niles, Ohio

Please send me the technical bulletins on titanium checked at left.

Name_____

Title_____

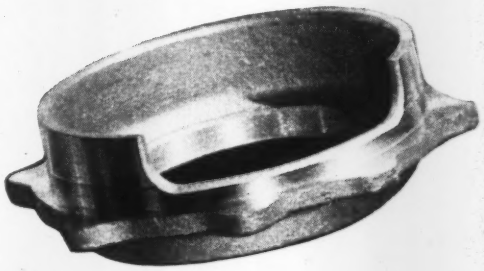
Company_____

Address_____

City & State_____

Another cost-conscious manufacturer finds that—

When the going gets tough ...put it on a Warner & Swasey



A modern Warner & Swasey Turret Lathe's cost-cutting combination of power, rigidity and accuracy has increased production of this piece 200% for R. H. Little Co. of Canton, Ohio.

TOUGH STEEL diesel-electric locomotive parts, designed by The Timken Roller Bearing Company, are run in 500-piece lots at the rate of 12 to 15 daily on R. H. Little's new Warner & Swasey 4-A Saddle Type Turret Lathe.

In addition to heavy stock removal, severely-interrupted cuts put a terrific strain on both tooling and machine. But their Warner & Swasey's power and rigidity easily handle this job.

This same casting was previously machined at the rate of only 5 a day when run on a 20-year-old lathe. Production was held down due to the machine's lack of horsepower and rigidity. This caused excessive downtime for tool changing and required constant operator attention to maintain required accuracy.

This is but another example of how today's alert metalworking management is profiting through the realization that... **When the going gets tough... put it on a Warner & Swasey.**

WARNER & SWASEY
Cleveland
PRECISION MACHINERY SINCE 1880

YOU CAN PRODUCE IT BETTER, FASTER, FOR LESS...WITH A WARNER & SWASEY

"I've never been able to assure so much protection in a chemical coolant—until now"

New HOCUT looks pure, and it is. Not only is it the best chemical cutting base from a lubricity angle—it has other outstanding merits: it cannot separate or turn rancid; it is a true *solution*—not an unstable emulsion; it has high rust preventive properties, and it helps you keep your shop clean and your machine operators happy.

And new HOCUT gives you all the advantages of a chemical coolant on all but the heaviest machining jobs. It penetrates almost instantly, cooling the work and cutting tool, preventing chip buildup and welding. A new, synthetic high molecular weight additive achieves better lubrication than most soluble oils. All this, for 6 cents a gallon, or less, in your machines.

When work comes off your machines, it's coated with a two-stage rust preventive. Why settle for less? Call your Houghton Man today—or write E. F. Houghton & Co., 303 West Lehigh Ave., Philadelphia 33, Pa. for data sheet on HOCUT 237.

the 100% chemical cutting coolant

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Philadelphia • Chicago • Detroit • San Francisco

Ready to give you on-the-job service . . .

This Week in STEEL The Metalworking Weekly

November 3, 1958
Vol. 143 No. 18

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Tell the facts on prices in terms of your business now. Don't wait for a Congressional investigation.

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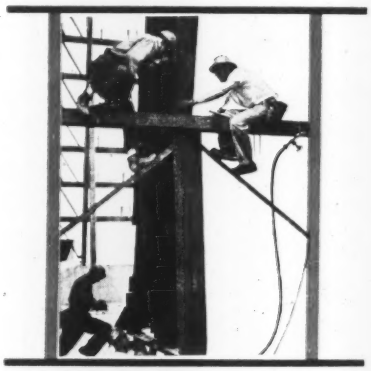

You can be sure with construction—sure that it will continue setting the economic pace next year despite tighter credit and higher costs. A STEEL survey puts dollar volume estimates in the $50 billion to $52 billion range.

WINDOWS OF WASHINGTON 46

Ike couldn't have picked better man than Strauss to light fuses if he planned politically explosive exit.

MIRRORS OF MOTORDOM 53

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Recovery base has been broader than most people realize, reports from durable goods industries indicate.

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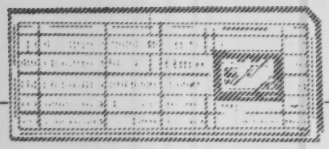

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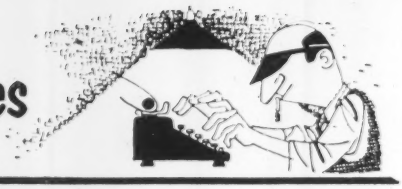
behind the scenes



Construction Never Rests

You don't have to be a philosopher to realize that the surest thing in life is change, and it's a lucky thing for our economy that this is true. Poets speak of the ageless rocks, the unchanging mountains, the constant stars, but that's just a lot of fancy talk. Rocks break up, mountains wear down, and even stars hurry toward extinction. In terms of building and construction (STEEL's cover theme this week), the time of change is not measured in eons, but in centuries and decades. Construction goes up, forests come down, fields are covered by factories, earth is covered by cement.

New construction pushes down old; in some areas the forests return; fields may be reclaimed; factories expand, some move to new sites; the earth that is covered by cement and blacktop can't absorb water, so the run-off from rains causes flash floods that demand extensive new storm sewer construction.

Cities are like bodies, which renew themselves by creating new cells, shedding the old ones. Skin cells push to the surface, brushing the dead ones aside, like skunk cabbage thrusting through dead leaves in the early spring. In cities, new buildings rise through the rubble of old; new streets thread through old districts, parks grow from tenements, and ornate residential areas turn into slums. This constant flux is the lifeblood of construction, and construction is the stuff that eventually checks all recessions.

Building Rests on Change

Sometimes we are not aware of the changes going on under our eyes. Less than 100 years ago, New England (not counting Maine) was more than half cleared of forest, and farms touched one another from the sea to the mountains. Today, New England is almost three quarters forest again; agriculture flourishes, although nothing remains of many farms except open cellars in the encroaching woods. However, New England's population is greater today than it was a century ago; its construction is valued at billions more than it was just before the War between the States; its production and manufacturing facilities are far superior to what they were even before World War II.

If all the construction in Boston at least a century old were removed, how much of the city would be left? Indeed, considering the connecting highways alone, how much of the city would be left if all the construction of the last 25 years were removed? The difference in both hypothetical instances represents the volume of construction in both periods.

STEEL is interested in construction because it is going on all over the world, and because it is such a vital factor in our economy. Metalworking's stake in this market is too obvious to point out in less than 75,000 words, so we'll skip it, because we doubt if even the angels who danced on the head of a pin would be able to put 75,000 words on this page.

Construction promises to lead us to new prosperity in 1959, so be sure to read all about it, starting on Page 42.

Bang-Up Job

Say you buy your mother-in-law a stainless steel corset that's 4 in. thick and 24 ft in circumference, but the sweet old thing has taken on some footage around the equator. Her armor has to be stretched one-third or 8 ft.

How?

"It's no longer a problem," offers Associate Editor Ross Whitehead.

"My mother-in-law's weight?"

"The stretching job . . . such work used to be done with dogs, wedges, and drop hammers, a long, tiresome ordeal, but now," says Ross, "it's being done just about as fast as you can say, BANG!"

"You mean . . ."

"Yes, it's another job for explosive forming. National Northern Corp. of West Hanover, Mass., recently handled a stretching job on a part with those dimensions by sealing off one end, filling it with water, inserting a large charge of explosives, sealing off the other end, and bang! Its circumference was increased exactly one-third."

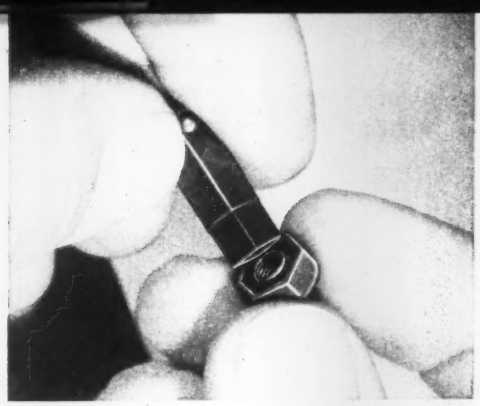
We let Ross talk that way because we know he knows wherefore of he speaks. His recent article on the subject ("Explosives Form Space Age Shapes," p. 82, Aug. 25) also went over with a bang. National Northern, one of the companies mentioned in it, tells us that Whitehead's piece has stimulated more than 500 inquiries to date.

Who's Sorry Now?

The U. S. Supreme Court vacated, as improvidently granted, a writ of certiorari which it had previously issued to review an order of the Court of Appeals of the District of Columbia denying a motion to vacate a stay, pending appeal to that court, of an order of the District Court of the District of Columbia enjoining the comptroller general of the United States from refusing to audit a claim of the Whosis Steel Corp. against the U. S. Got it all straight? Now, then: Was the Whosis Steel Corp. pleased, or not?

Shirley

(Metalworking Outlook—Page 33)

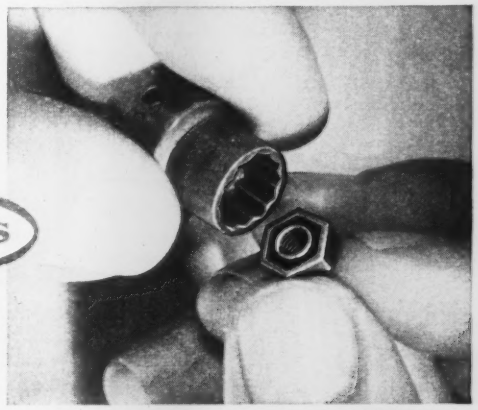


INTERNAL

Accent on Excellence

Youngstown cold finished bars

BOOTS



EXTERNAL

These Boots Hex Nuts—the only nuts available today that offer 100% wrenching contact both internally and externally—are fast gaining acceptance for assembly line applications in every industry from aircraft . . . to plastic specialties.

In producing their full line of versatile fasteners, Boots Aircraft Nut Corporation of Norwalk, Conn., starts with Youngstown Cold Finished Bars as the basic raw material. They especially like the steel's superior machineability and cold working properties which are a direct result of rigid quality control over every step in their manufacture—from ore mining to final cold drawing.

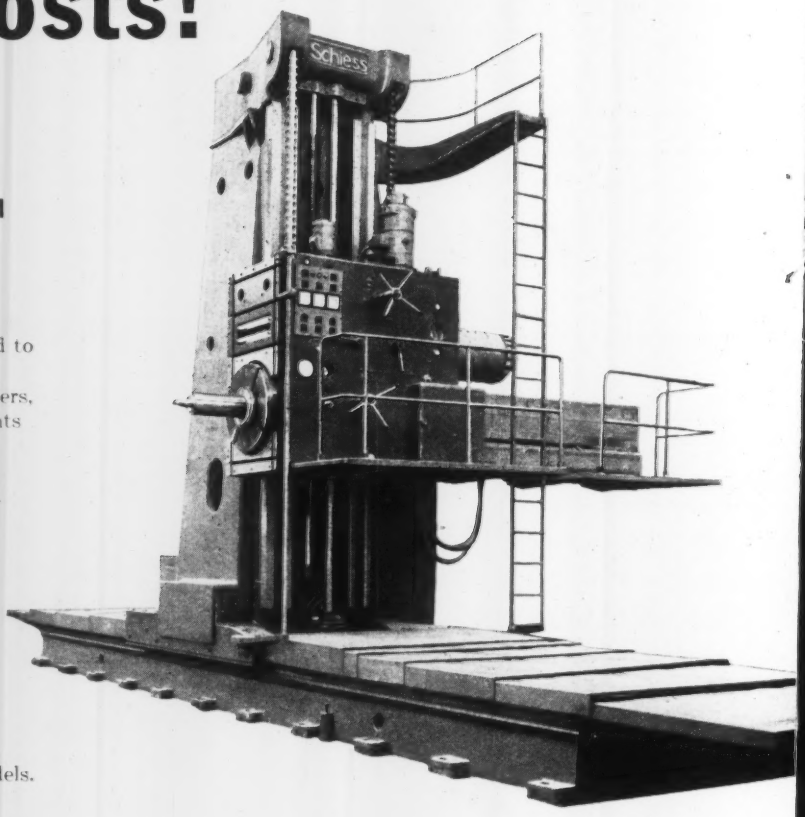
Wherever steel becomes a part of things *you* make, the high standards of Youngstown *quality*, the personal touch in Youngstown *service* will help you create products with an "accent on excellence".

QUALITY YOUNGSTOWN SERVICE

THE
YOUNGSTOWN
SHEET AND TUBE COMPANY

Manufacturers of Carbon, Alloy and Yoloy Steel
Youngstown, Ohio

watch these giant workers chip away costs!

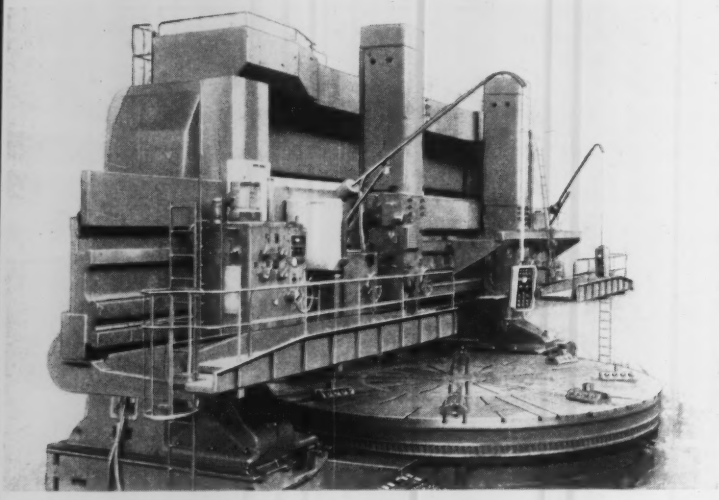


This 8⅞ in. SCHIESS model BF horizontal boring and milling machine . . .
now completely redesigned with many innovations. Here are a few . . .

Two individual drives—gear-drive for roughing, belt-drive for finishing. Belt-drive particularly suited to high-speed machining with carbide tools. New tool clamping device—does away with draw keys, hammers, drifts and binding screws. All spindle-slide movements controlled from easily accessible operating platform (or from pendant station or portable control panel, if desired). Special main-drive belt requires no readjusting. Column, spindle-slide and boring spindle may be adjusted at rapid traverse.

Spindle diameters, 6-5/16″ to 8-7/8″. Maximum diameter bored, 59″—faced, 79″.

It takes Europe's largest builder of heavy machine tools, Schiess, to turn out giants like these. Parts and service as close as Pittsburgh. And an American Schiess engineer will be happy to help you size up these heavy producers for your heavy production needs. Write for catalogs and complete specifications on all Schiess BF and K models.



This 32 ft. SCHIESS model GK vertical boring and turning mill . . .
Look at all these new features of the most modern vertical boring mill of its type: Two ram heads on the rail, one of which is tracer-controlled. One milling head on the rail which can be parked on the left side rail extension. Dual tables—one 15′ table on the inside, a 32′ table on the outside. Each table has independent drive, or both tables can be used together and synchronized as one. Table equipped with indexing device to be used for indexing layout work. Machine will swing a maximum diameter of 40′. Rapid traverse motions with pushbutton control of changeover from feed motion to independent power traverse. Electro-mechanical locking of cross-rail to columns. Fingertip speed control—counter-balanced cross-rail and side-head—completely enclosed swiveling octagon rams—pendant control—automatic lubrication.

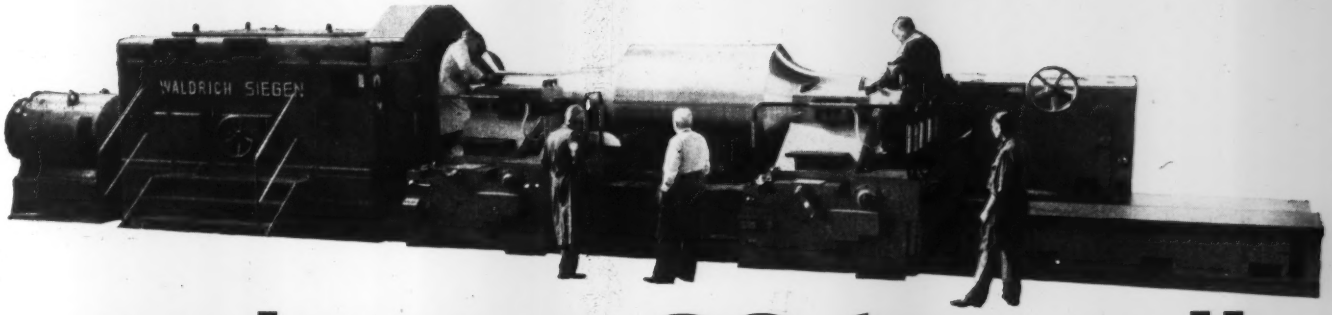
Have you ever seen anything like it?

SCHIESS

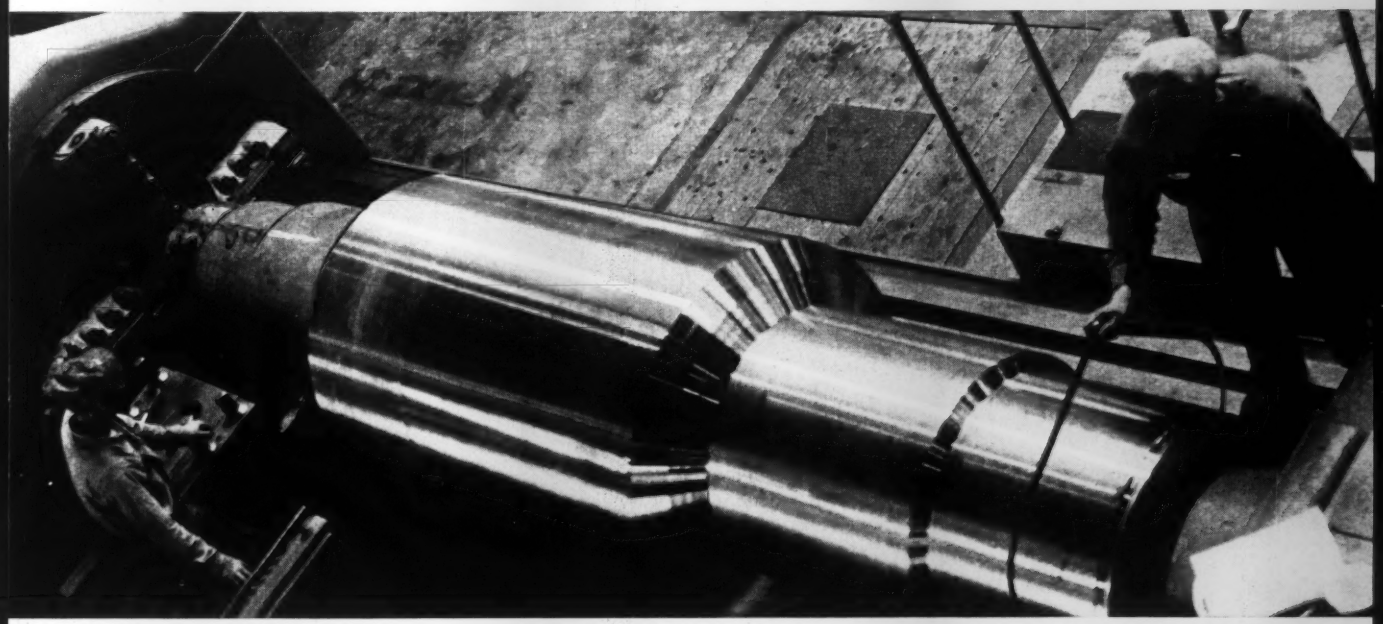
AMERICAN SCHIESS CORPORATION

1232 Penn Avenue, Pittsburgh 22, Pa.

this Waldrich giant



swings a 90-ton roll



—cuts rough turning time 75%

You're looking at the business end of a Waldrich-Siegen Roll Turning Lathe, built to turn a workpiece as long as 30 ft., as fat as 63 in. in diameter, and as heavy as 90 tons!

Right now, you're seeing it in action at the Ohio Steel Foundry Co., Lima, Ohio, biting into a 57-ton, 98-in. long roll, with a 53-in. O.D. In just three passes, its hungry cutters will shear 15 inches of steel off this diameter. Before it's through, 12 tons of turnings will come off.

This job used to take 68 hours at Ohio Steel Foundry. The husky Waldrich breezes through it in just 16½ hours flat.

It takes plenty of muscle to peel through so much steel and the Waldrich has it, delivering 250 horsepower to the spindle. Speed is set at the selector wheel, feed at each of the two independent carriages.

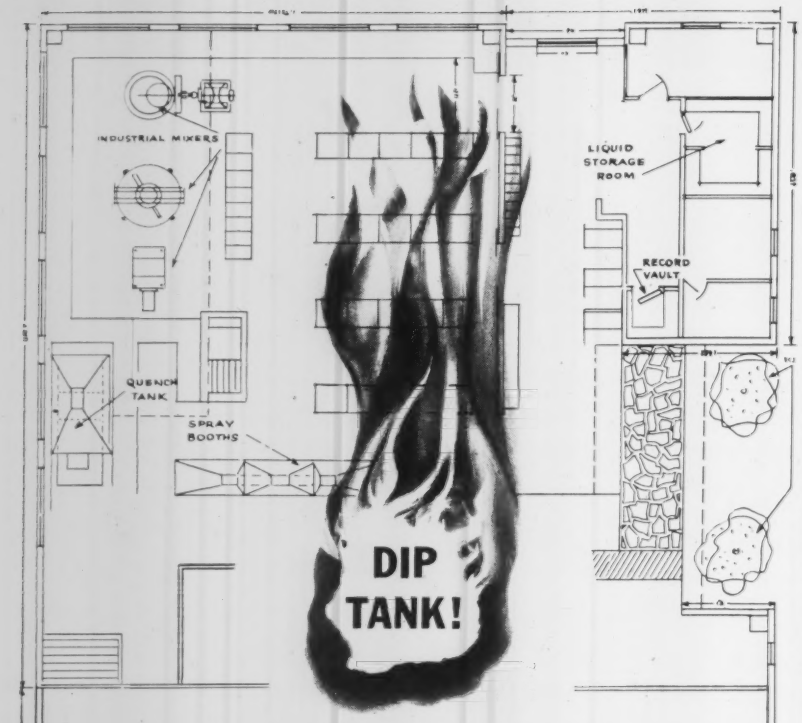
And here's an interesting economy note: chips from the Waldrich lathe are large enough to be remelted, unlike finer chips from other lathes that oxidize too quickly. Ohio Steel Foundry collects a bonus of $15 on every ton salvaged.

Three different size Waldrich lathes are now in operation at this plant, turning workpieces with maximum O.D.'s of 36″, 48″ and 63″. Maybe one of these sizes is the answer to your roll turning needs. It's easy to find out. Write today for complete details on these heavy producers.

WALDRICH SIEGEN

american waldrich mfg. corp.

1232 PENN AVENUE, PITTSBURGH 22, PENNSYLVANIA



HOT SPOT in your plant?

Guard dip tanks, spray booths, record vaults against the danger of fire! Guard them 24 hours a day with a Kidde fully-automatic carbon dioxide fire extinguishing system. Finest fire protection on the market today, Kidde systems give you these outstanding features that come from more than thirty years' experience!

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Walter Kidde & Company of Canada Ltd., Montreal — Toronto — Vancouver

LETTERS TO THE EDITORS

Industrial Fair Great Success

I want to compliment you on the fine article, "Industrial Shows Go to County Fair" (Sept. 22, Page 41). It drew a lot of interest and comments from the manufacturers. The purpose of the industrial fair was well expressed.

The fair was a tremendous success and the manufacturers were impressed with the public interest. The public relations gained was worth all the effort.

Royal L. Breed
Sterling Commercial Steel Ball Corp.
Sterling, Ill.

Sales and Purchasing Profit

We would like to use your article, "Purchasing for Profit" (Oct. 13, Page 89), for review to see if our purchasing department is checking everything possible, and to see if our sales department is studying our selling from a purchaser's standpoint.

Edw. D. Hendrickson
Executive Vice President
Hendrickson Mfg. Co.
Lyons, Ill.

• • •

This is a fine article, easily understood and sincere, on a subject of vital importance to management. It is proof positive that "material management" is secure and need not live off a company's sympathy fund.

G. Lefert
Director of Purchases & Materials
Standard Register Co.
Dayton, Ohio

John Q. Public Bargains, Too

Congratulations on your editorial, "Mr. Reuther Has a Point" (Sept. 29, Page 53). Through my 50 years of industrial experience, I have always maintained that intelligent labor leaders and similarly qualified management men should sit down at least once a month around a dinner table, whether the organization be a plant or an industry. It's an unfortunate fact that outside of the few professionals who are trained to deal with

(Please turn to Page 12)

FROM FOUNDATION TO DEDICATION BLISS WILL BUILD YOUR "TURN-KEY" PLANT

. . . Bliss will shoulder the entire job of building and equipping your next metalworking plant. And whether you need a complete plant . . . a single piece of equipment . . . or fast fabrication of heavy components, it's wise to get a bid from BLISS.

BLISS
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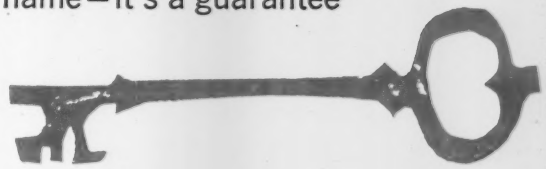
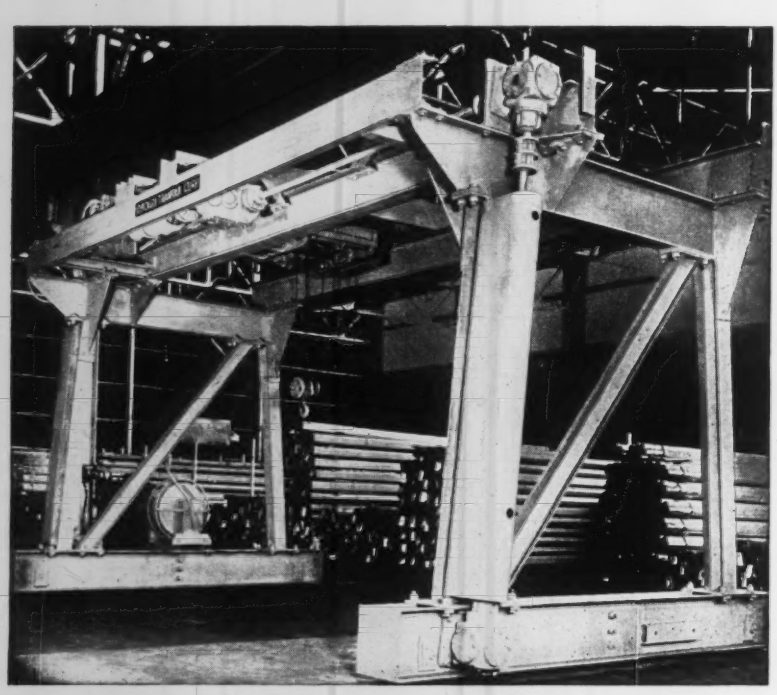
Bliss is more than a name—it's a guarantee

E. W. BLISS COMPANY, General Offices: Canton, Ohio





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GANTRY CRANES

At the modern plant of one of the country's largest aluminum companies, Chicago Tramrail Gantry Cranes handle long extruded pieces from a 14,000-ton extrusion press . . . transfer these pieces to other operations throughout the mill.

Fourteen Chicago Tramrail Full Gantry Cranes provide individual handling equipment for individual operations to eliminate waste time waiting for busy overhead cranes. Designed for heavy-duty, continuous service, these Gantries are built with maximum headroom and maximum clearance between legs to operate independently under the large overhead cranes.

For a practical, economical solution to your materials handling problems, see our experienced engineers. Special designs, sound engineering and broad application knowledge qualify us for helpful service.

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OVERHEAD CRANES • JIB CRANES • STACKER CRANES • MONORAIL SYSTEMS

LETTERS

(Concluded from Page 10)

labor negotiations, both sides frequently pick the wrong kind of representatives to do the bargaining, a loud mouth and a bellicose attitude apparently being the qualifications which secure nomination to the job.

I am not against unions; in fact, I have always preferred to deal with a well-organized, disciplined union rather than a heterogeneous mob of people for whom no one can speak with authority. However, there is a third, but most often silent, partner sitting in on most labor negotiations and that is Mr. John Q. Public, and I'm he in these talks between Walter Reuther and the automobile industry.

Frankly, I'm fed up with the high prices of new cars. As for buying a new car, I'm just plain on strike. In the last analysis, I, John Q. Public, am the boss because if I refuse to buy a new car for any serious period of time, that will bring a lot of changes in attitude of those people who are sitting around the table figuring out by how much they can deplete my yearly earnings to keep their plush-lined automobile industry viable.

Incidentally, the steelworkers live mostly off the automobile industry (don't they?), so Mr. McDonald might possibly be interested in the fact that John Q. Public is on strike against the gouging that he has been getting these last few years, and while he does not particularly like these little "sputniks" that come from Europe, he is going to buy more and more of them. Why? Because he is fed up with being gouged by his own people. The "sputniks" are proving that we can still hold the road without big tail fins, super-duper chrome, Christmas-tree lights and a general air of rhinestone elegance.

F. E. W. Harrison
President
Harrison Engineering Services
Washington

'Soft Sell' Needs Firming

Our industrial sales department is anxious to reproduce your fine editorial, "Is Soft Sell Out?" (Oct. 6, Page 35). We would like to include it in a letter going to our sales representatives.

May we have permission to copy it?

A. J. Gerard
Advertising Manager
John Bean Div.
Food Machinery & Chemical Corp.
Lansing, Mich.

• • •

Once again, one of your fine editorials has impressed our sales management so much that they would like to make the message available to our entire sales force. May we duplicate it for them?

John G. Vogeler
Advertising Manager
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For complete information on these improved oils, contact The Atlantic Refining Company, 260 South Broad Street, Philadelphia 1, Pa., or any of the offices listed.

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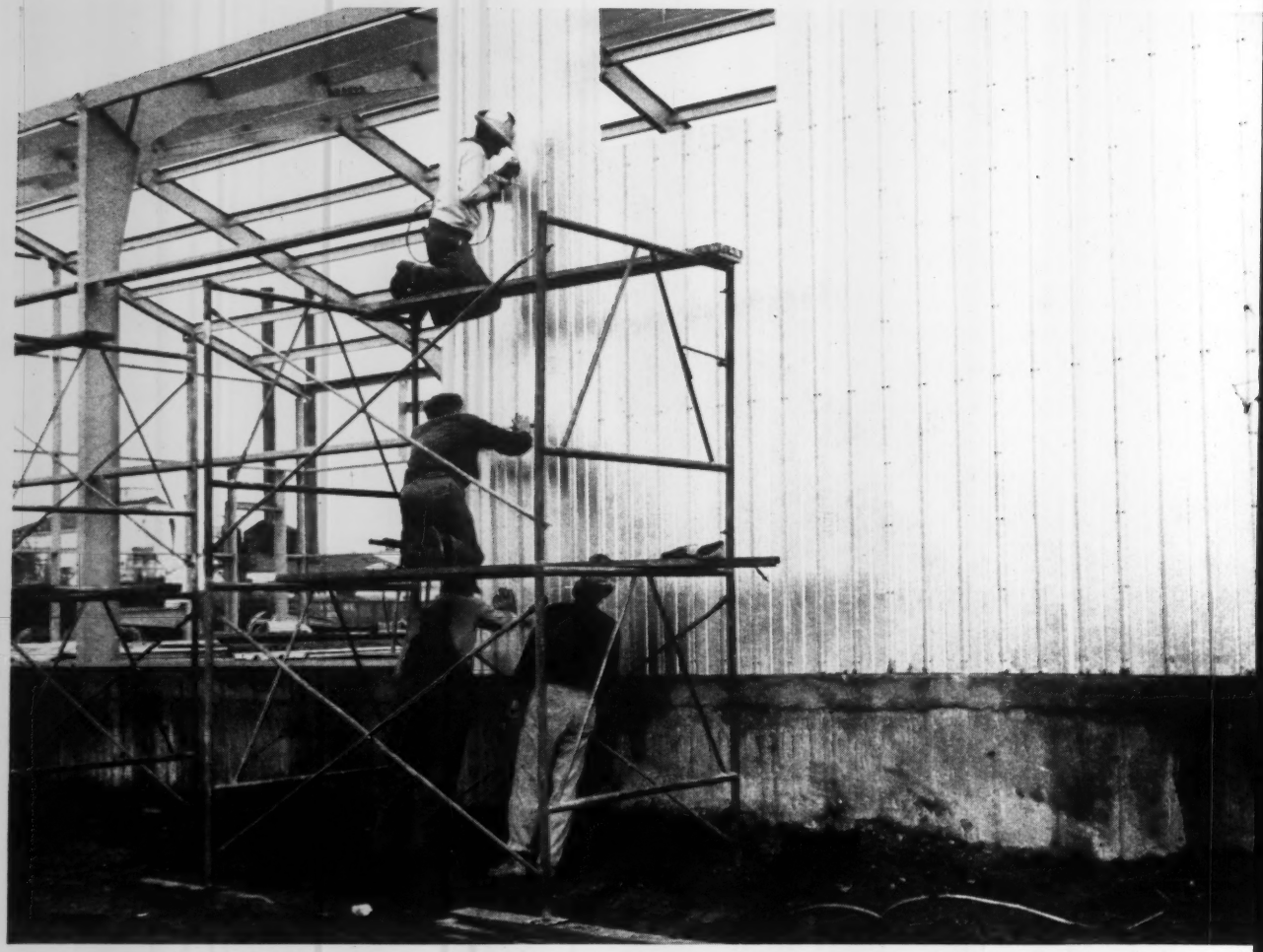


3 WEEK DELIVERY

TRUSCON "Budget-Buildings"

Truscon Steel "Budget Buildings" are the fast, economical way to provide warehousing, enlarge manufacturing facilities, erect field offices at lowest cost. Available with 3-week delivery from order to job site!

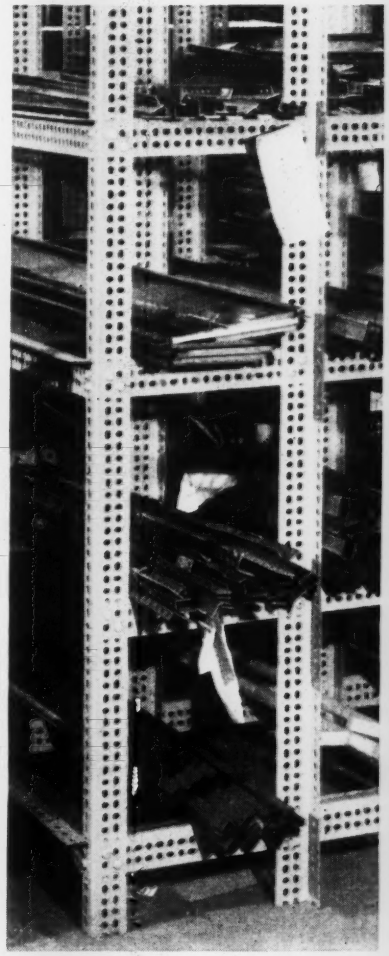
Basic framework is of rigid frame design, shop fabricated from hot rolled structural sections, complete with all necessary connection plates and anchor bolts. Purlins and girts are cold formed channel sections, bolted with standard machine bolts.

Roofing and siding are 26-gage galvanized roll formed ribbed sheets 24″ wide, and in continuous lengths. Sheets are rolled from Republic tight-coated, continuous hot dip galvanized steel . . . will not flake, crack, or peel. More rust resistant than ever and no painting needed.

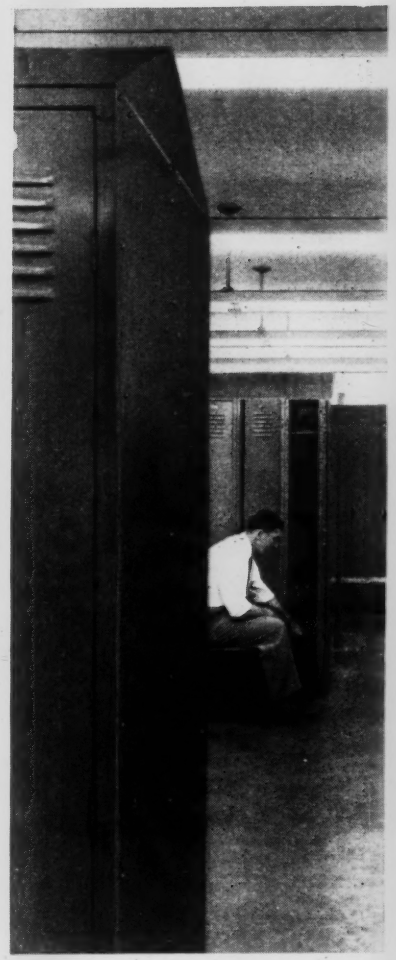
Truscon "Budget Buildings" are available in widths of 32, 36, 40, 44, and 48 feet—12- and 14-foot heights, in any lengths necessary. All roofing, siding, windows, doors, and hardware are shipped to the job site as a package.

To learn more, call your Truscon representative, or write for attractive, full-color brochure.

REPUBLIC COIL COVERS provide excellent weather protection, shut out dirt, stop vandalism, eliminate costly replacement of short-lived tarpaulins, eliminate the need for paper wrappings on coils. These coil and car covers are 22 feet long, 6 feet wide, and 6 feet high. Two covers are used with each 52-foot gondola car, easily handled by overhead or trackside crane. Designed for stacking. Send coupon for more shipping protection facts.



REPUBLIC METAL LUMBER® saves time, space, and money! Precision engineered system of short slots placed to allow ¾″ vertical and horizontal adjustment, offers unlimited applications. Simply measure, cut, assemble. Bonderized to resist rust and damage; baked enamel finish. Delivered in bundles of 10 angles, .080 gage or .104 gage, 10- or 12-foot lengths, bolts and nuts included. Stores in space of one 2″ x 4″ piece of lumber. Send coupon for idea-packed catalog.



REPUBLIC STEEL LOCKERS offer clean, attractive, dress-wash-change facilities. Interiors are spacious, well designed for convenience and ventilation. All furnaces are Bonderized to resist rust, retard corrosion, and provide better paint adhesion. Finish is baked enamel. Positive locking, heavy-duty steel construction assure protection of personal effects and tools. Call your nearest Republic representative, or send coupon for data, prices, and delivery.

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- ☐ Republic Coil-Car Covers
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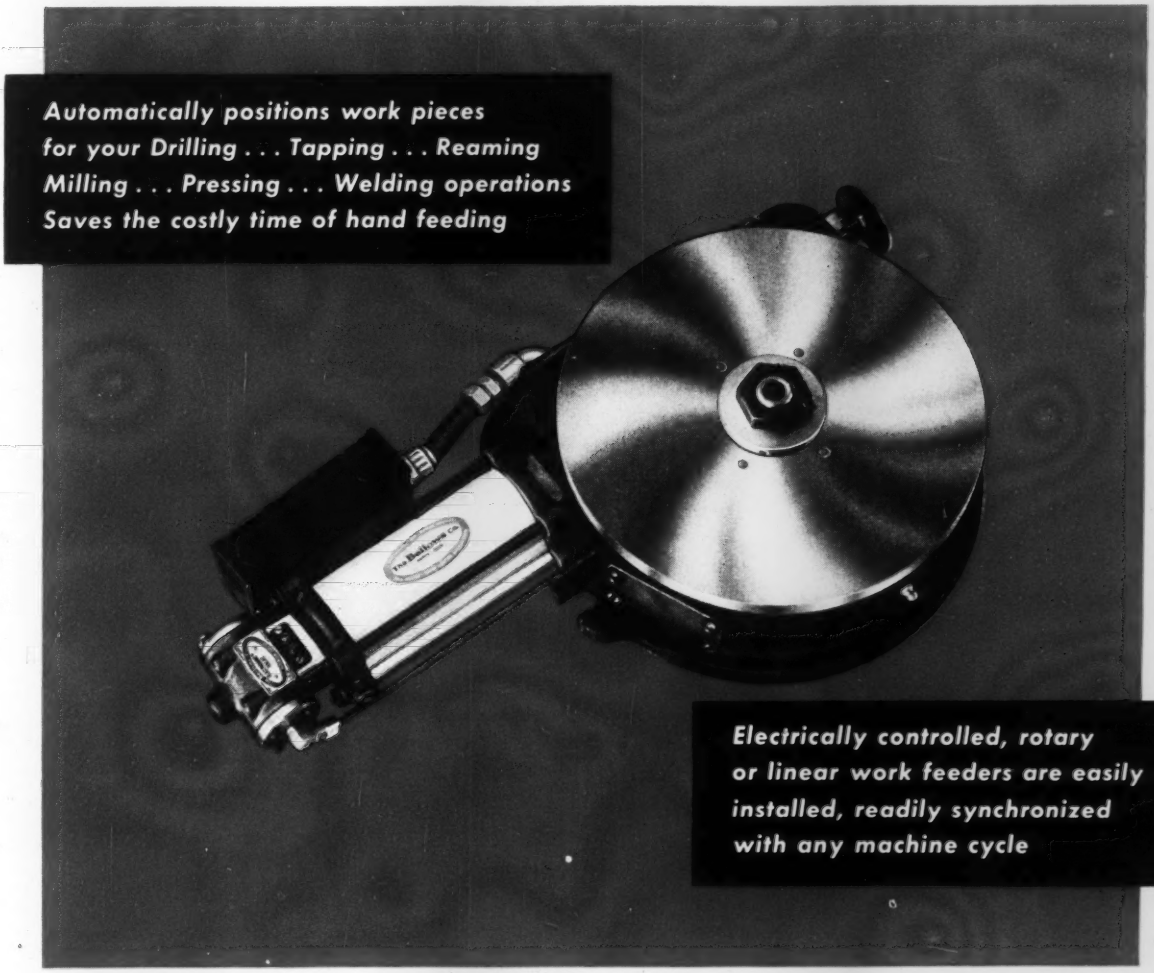
Automatically positions work pieces
for your Drilling . . . Tapping . . . Reaming
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Saves the costly time of hand feeding
Electrically controlled, rotary
or linear work feeders are easily
installed, readily synchronized
with any machine cycle

QUALITY CONTROL CAN BEGIN AT THE POINT-OF-OPERATION WHEN YOU FEED PARTS WITH BELLOWS WORK FEEDERS

You will have many more acceptable parts at Final Inspection if you examine work pieces at the point-of-operation. To give machine operators time for visual inspection, feed parts to tools with Bellows Work Feeders. The operator will then have time to load at one station, unload and examine a finished part while his machine continues to work. Not only will there be time for examination of the machined part but you will be able to use more of the machine's producing ability. The tool won't be standing idle while the operator loads and unloads.

Bellows Work Feeders are made in both rotary and linear type models; different units designed for high speed parts positioning where tolerances are not critical, or precision indexing types where close accuracy is required.

Air-Powered, electrically controlled, they are easily installed on standard machine tools, can be readily synchronized to work with the basic machine cycle.

To cut machining costs . . . keep the machine working while you load or unload a fixture.

These Bulletins give you the Facts

Write for Bulletins RT 1022 and RT 1326 for full specifications and application data on Bellows Work Feeders. Address Dept. ST-1158, The Bellows Co., Akron 9, Ohio. In Canada, Bellows Pneumatic Devices of Canada, Ltd., Toronto 18, Ontario.

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DIVISION INTERNATIONAL BASIC ECONOMY CORPORATION

AKRON 9, OHIO

1030-B

integrated CRUCIBLE steel service

Crucible inside account salesmen (1) simplify ordering and expedite deliveries of the steels you need, (2) arrange for handling extra services, (3) supply you with basic steel and metalworking data.

staffs 27 local warehouses with specialized personnel to solve your specialty steel problems

"We frequently rely on Crucible warehouse people," says one of our good customers. "We've found they can sometimes show us more economical steels, sizes and methods than those we're using. Furthermore, they give us valuable help with steels we're using for the first time."

This steel buyer, like thousands of others, believes in getting services with the steels he buys. Here's what he gets:

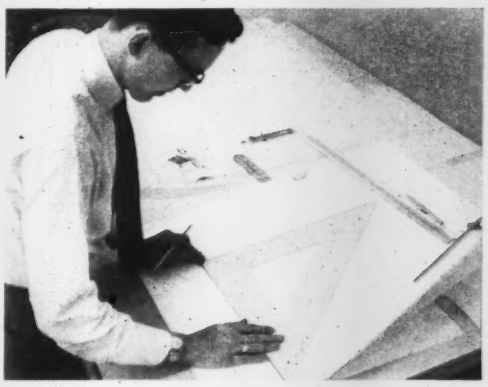
Crucible inside account salesmen help him simplify ordering, speed up his deliveries. They can efficiently arrange for extra services, such as forging, slitting, grinding and polishing, because of their special training at Crucible mills.

Crucible sales-service engineers give their production and toolroom people valuable metalworking assistance. They'll recommend machining speeds and feeds, quenching temperatures, the best forming and joining methods.

Behind these specialists are the resources of Crucible's entire, integrated operation – from mining the ore to steelmaking to warehouse delivery to you. Why not take advantage of these services each time you order specialty steels? They're available through every Crucible warehouse. *Crucible Steel Company of America, Dept.PK15, The Oliver Building, Mellon Square, Pittsburgh 22, Pa.*

Need certified test reports for government work? Warehouses can supply the steels and notarized reports of analyses.

Trained, experienced sales-service engineers can help your engineers use steels that are new to you.



This is the easiest way to arrange for forging, flame-cutting — have the warehouse accommodations service do it for you.

STOCK LIST
Keeps you up-to-date on local stocks of specialty steels. Just ask the Crucible salesman to place your name on the regular mailing list.

One Source For All These Steels

TOOL STEELS–Water, oil, air hardening, shock resisting, hot work, plastic and die casting steels in all forms, including bars, sheets, plates, drill rod, hollow bars, forgings and flat ground stocks

HIGH SPEED STEELS–Crucible's famous "Rex"® steels: Rex Thrift Finish rounds, hot rolled and cold drawn flats and squares, drill rod, forgings, sheets, plates, and tool bits

STAINLESS STEELS – Bars, sheet, strip, wire, cold heading wire, metalizing wire, plates, angles

FREE MACHINING STEELS – Crucible Max-el® rounds, hexagons, plates and brake die steel
ALLOY STEELS – Bars, billets, strip and sheet
COLD ROLLED CARBON SPRING STEELS
DRILL STEELS – Hollow and solid drill steels
ALUMINUM EXTRUSION DIE STEELS
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PLASTIC MOLD STEELS
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– and many others

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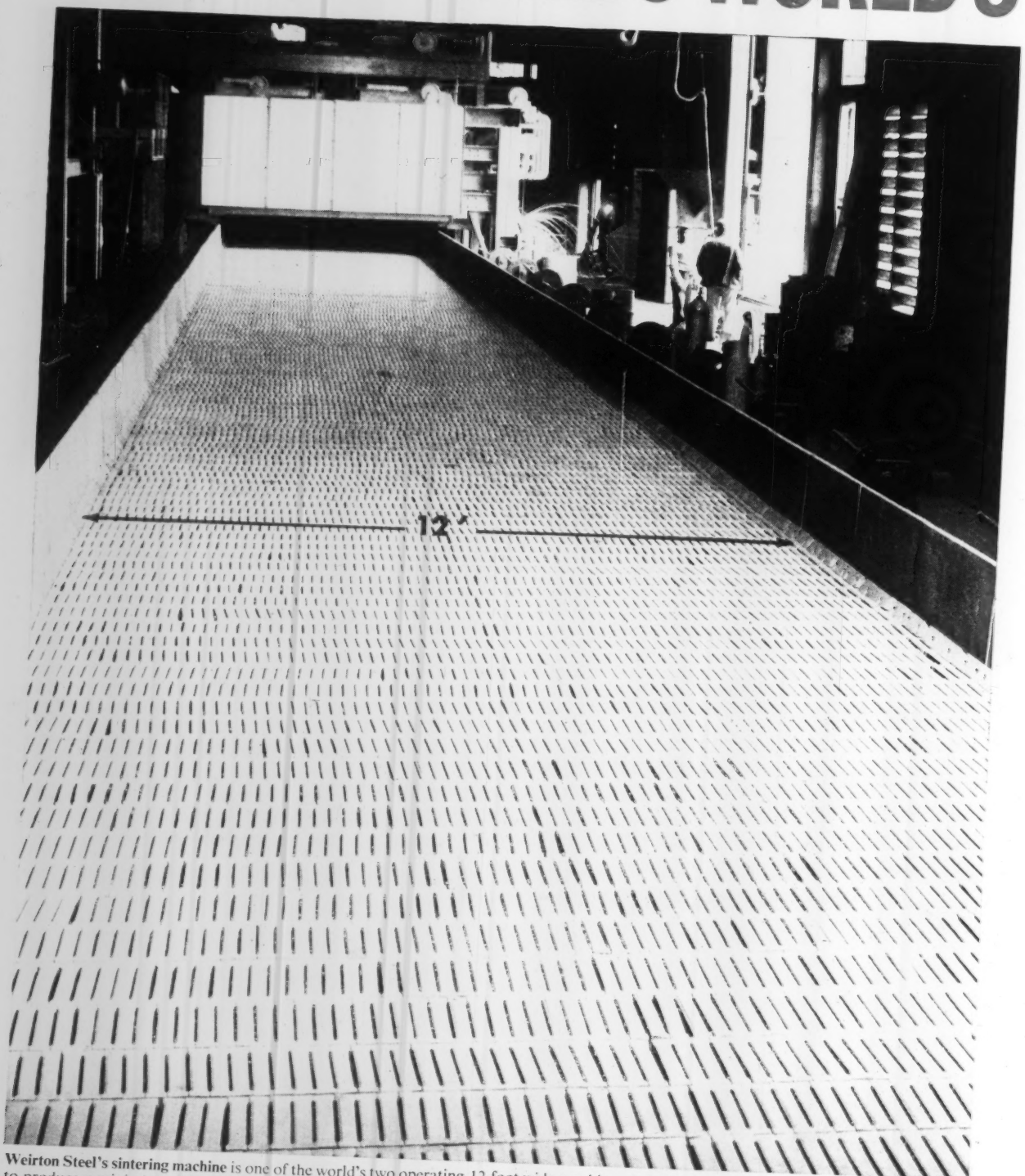
FOR NATIONAL STEEL

KOPPERS BUILDS WORLD'S



Weirton Steel's sintering machine is one of the world's two operating 12-foot wide machines for sintering iron ore. This machine was designed to produce a minimum of 5,500 tons of sinter product per day.

LARGEST SINTERING MACHINES

The two largest iron ore sintering machines in the world—both 12 feet wide—are now in operation. Both are part of plants built by Koppers. Both are helping Divisions of National Steel Corporation improve productivity.

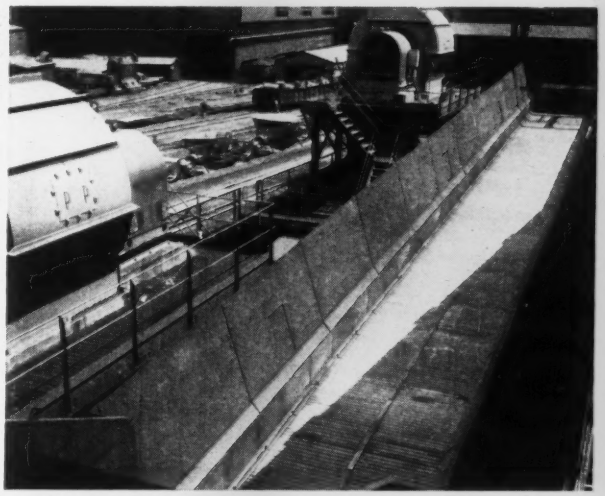
The machine shown here is operating at Weirton Steel Company. It is 12 feet wide, 147 feet long over the wind boxes, has a total grate area of 1,764 sq. ft. It was designed to produce 5,500 tons of sinter product per day.

An even larger machine is also in production at Great Lakes Steel, another Division of National Steel Corporation. This new giant is 12 feet wide and 199 feet 6 inches long over the wind boxes. It was designed to produce 7,200 tons of sinter product per day.

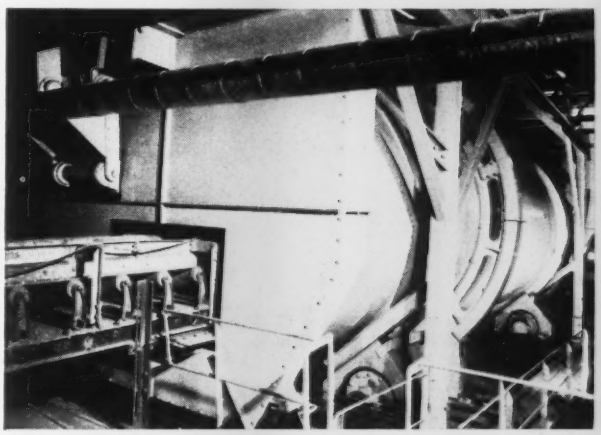
These two pioneering machines are typical of the continual modernization program being carried on throughout the National Steel organization. A forward-looking approach on the part of National Steel's operating and management personnel, and their complete co-operation and assistance during every phase of engineering and construction, contributed greatly to the successful completion of these two projects by Koppers.

Comprehensive Koppers service to the steel industry includes design, engineering, procurement, construction and initial operation of almost any type of equipment.

If you need help or advice on any expansion or modernization project, call on Koppers—the world's largest, most experienced, best qualified steel-plant construction firm. Our engineers and management personnel can be reached at Koppers Company, Inc., Engineering and Construction Division, Pittsburgh 19, Pennsylvania.



The straight-line, forced-draft sinter cooler of Weirton Steel's new sintering plant is 10 feet wide, 147 feet long.



This 12′ x 40′ balling drum, in use at the Weirton plant, is designed to prepare the raw mix material fed to the sinter machine.

YEARS OF ENGINEERING AND CONSTRUCTION SERVICE

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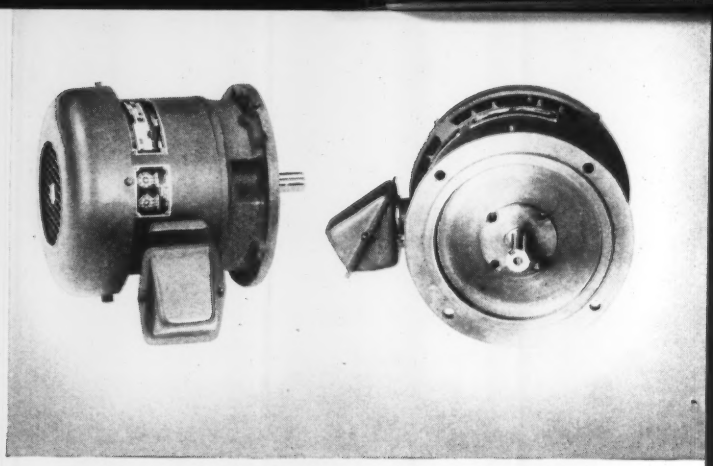
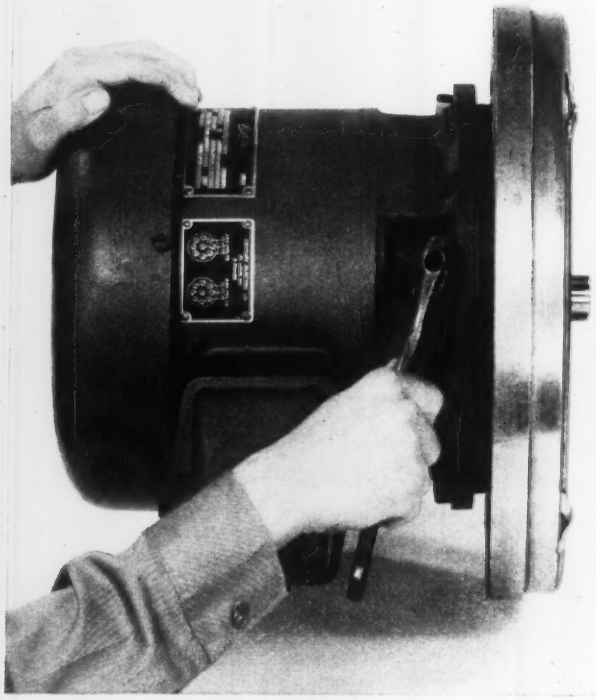
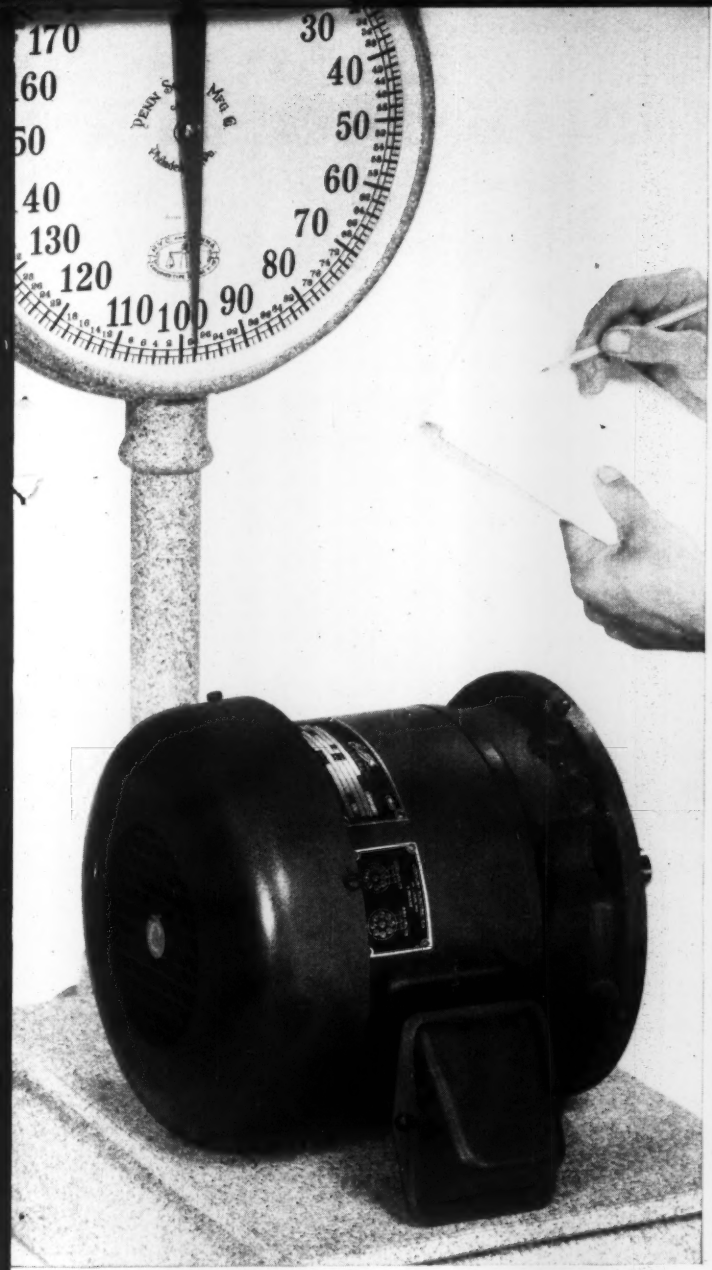




It's smaller. . . easy to mount . .

This is *not* simply a rerated motor. The Century Electric short motor is a standard motor available in ratings up to 15 hp, but . . . it has been redesigned to cut down length as much as four inches. It is designed to save space and weight for application on machine tools, roof ventilators, pumps, centrifuges and many other types of equipment.

Easy to mount: You can use this motor in place of any end-mounted motor because it has a standard flange. It can also be mounted horizontally, vertically or at any angle. Its small size means it can be mounted almost anywhere on equipment.



.lighter . . . *The Century Electric short motor*

Variety of applications: The short motor gives dependable performance on applications requiring frequent start-stop operation. You can get it in totally enclosed or open frames. And it has the same quality features and high standards of all of Century Electric's complete line—up to 400 hp.

More than a motor: This motor is the result of a continuing search for ways to meet industry's needs. Another reason why you get *more* than a motor from Century Electric.

For more details contact your nearest Century Electric Sales Office or Authorized Distributor.

CENTURY ELECTRIC COMPANY

St. Louis 3, Missouri *Offices and Stock Points in Principal Cities*

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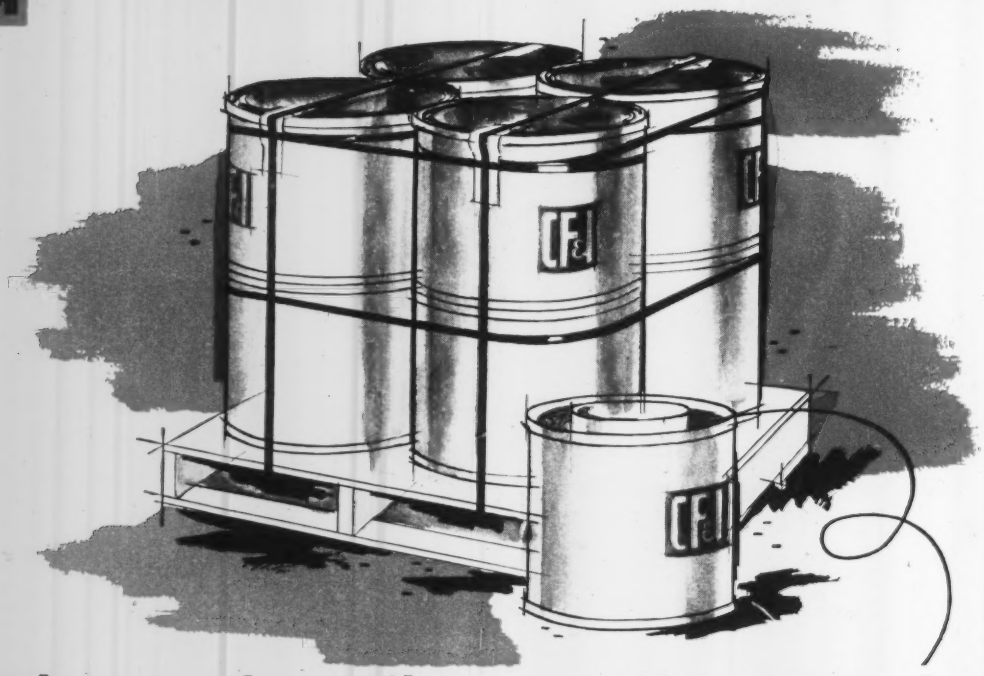
58-14

CF&I WIRE IN FIBRE DRUMS



reduces downtime...cuts scrap loss

CF&I Wire is now packed in fibre drums to keep it rust- and dust-free from the last pass on the drawing frame, through shipping and storage, until the sealed fibre drum is opened at your wireforming machines.

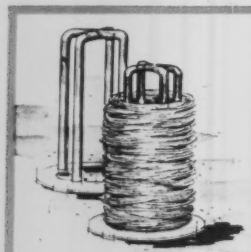
Less Handling—Longer Runs

CF&I Wire in fibre drums ends the cost and inconvenience of having to handle small coils manually. You get from 400 to 600 lbs. of wire in *one continuous length*. That means less downtime, less scrap loss. Note the following comparison.

500 lb. Fibre Drum	70 lb. Coil	Comparative Results
Wire Diameter .0468" 170' per lb. Total Footage—85,000'	Wire Diameter .0468" 170' per lb. Total Footage—11,900'	Fibre drum provides 7 times as much continuous production. Reduces necessity for stopping equipment for coil changes.

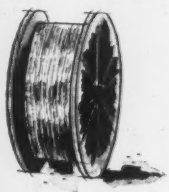
If your manufacturing process is not equipped to use fibre drums, order our economical 500-800 lb. capacity reels or non-returnable "spiders." Half fibre drums (holding from 250 to 400 lbs. of wire) and steel strapped or paper wrapped coils are also available. For high or low carbon steel wire; round, flat or shaped; in any size, temper, grade or finish, make CF&I your source of supply.

OTHER CF&I STANDARD PACKAGING METHODS

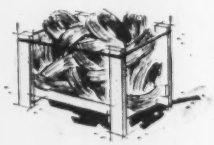


Returnable spiders (2000-4000 lbs. capacity)

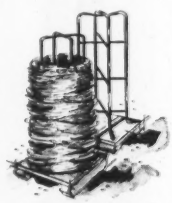
Steel strapped coils (200-2000 lbs.)



Reels (500-800 lbs. capacity)



Steel strapped wooden rack



Non-returnable spiders (500-700 lbs. capacity)

CF&I WICKWIRE WIRE

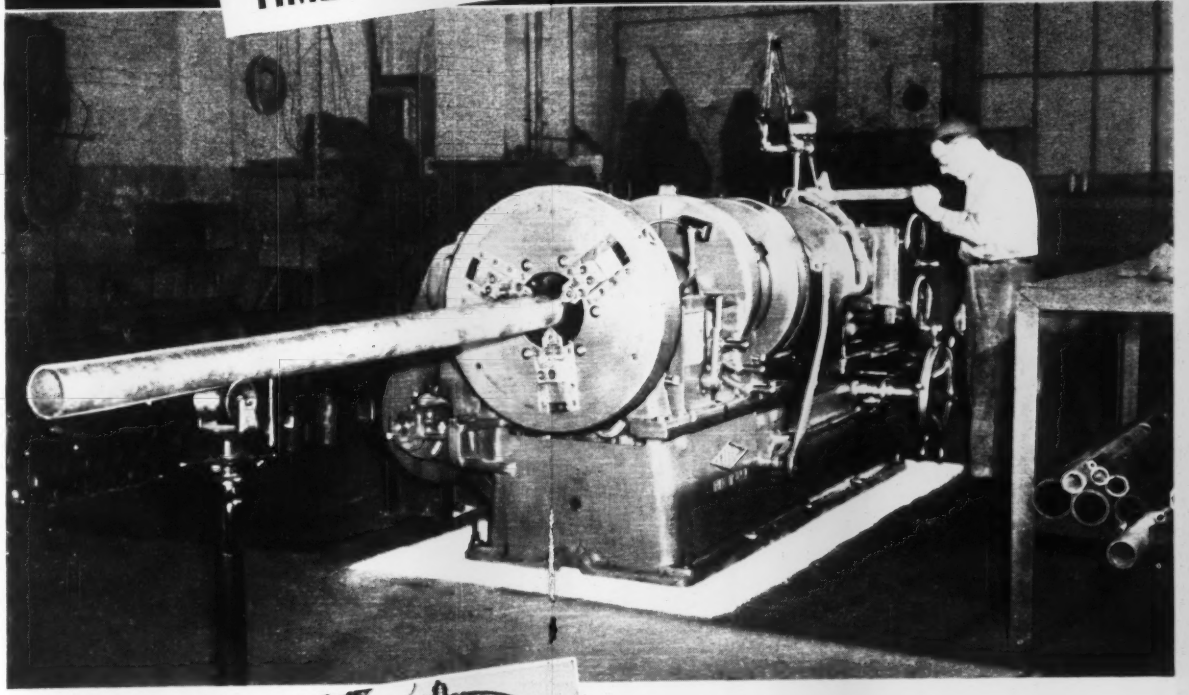
THE COLORADO FUEL AND IRON CORPORATION

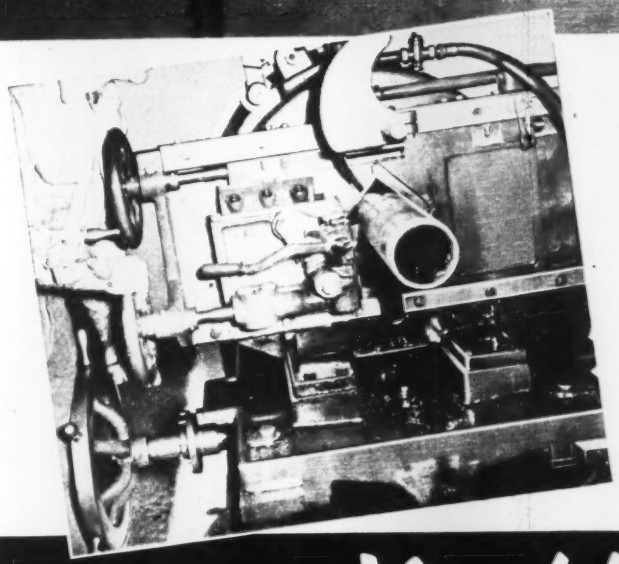
THE COLORADO FUEL AND IRON CORPORATION—Albuquerque • Amarillo • Billings • Boise • Butte • Denver • El Paso • Ft. Worth • Houston • Kansas City • Lincoln Oklahoma City • Phoenix • Pueblo • Salt Lake City • Wichita • **PACIFIC COAST DIVISION**—Los Angeles • Oakland • Portland • San Francisco • San Leandro • Seattle • Spokane **WICKWIRE SPENCER STEEL DIVISION**—Atlanta • Boston • Buffalo • Chicago • Detroit • New Orleans • New York • Philadelphia • **CF&I OFFICES IN CANADA:** Montreal • Toronto **CANADIAN REPRESENTATIVES AT:** Calgary • Edmonton • Vancouver • Winnipeg

6076

VERSATILITY

Saves TIME & MONEY in Maintenance Shops





Photographs show a Landis Pipe Threading Machine installation in a Job Shop of the New York Central Railroad. This shop, located at Weehawken, New Jersey, operates as a Marine Repair Shop handling maintenance for tugs, barges, lighters, etc. Illustrations show wrought iron pipe being cut off after reaming and threading. Standard pipe threads are cut 1 1/2" long on the 4" pipe, using a cutting speed of 25 surface feet per minute. This machine is also used for cutting boiler tubes to length.

The wide diametrical range of the die heads and the use of patented tangential pipe chasers gives these machines a versatility invaluable in maintenance work. For example, the 6" Landis Pipe Threading Machine illustrated threads all pipe sizes from 1" to 6", inclusive. Size adjustment of the die head is simple and quick. Chasers need not be changed except for threads of a different pitch, form, or taper. Chasers are interchangeable and need only be replaced singly as needed. Tangential cutting action reduces wear, and chasers can be reground to use over 80% of their length. Write for Bulletin C-61.

LANDIS *Machine* COMPANY

WAYNESBORO · PENNSYLVANIA · U. S. A.

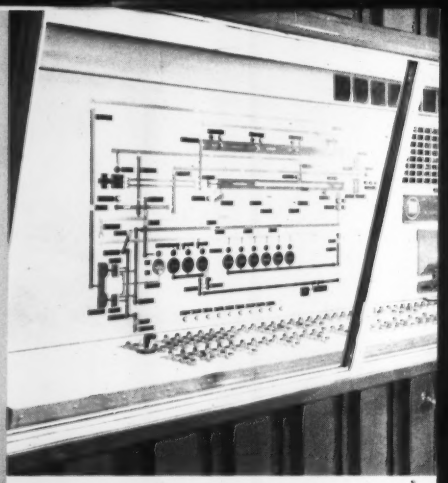
Historical dates in Continuous Sintering

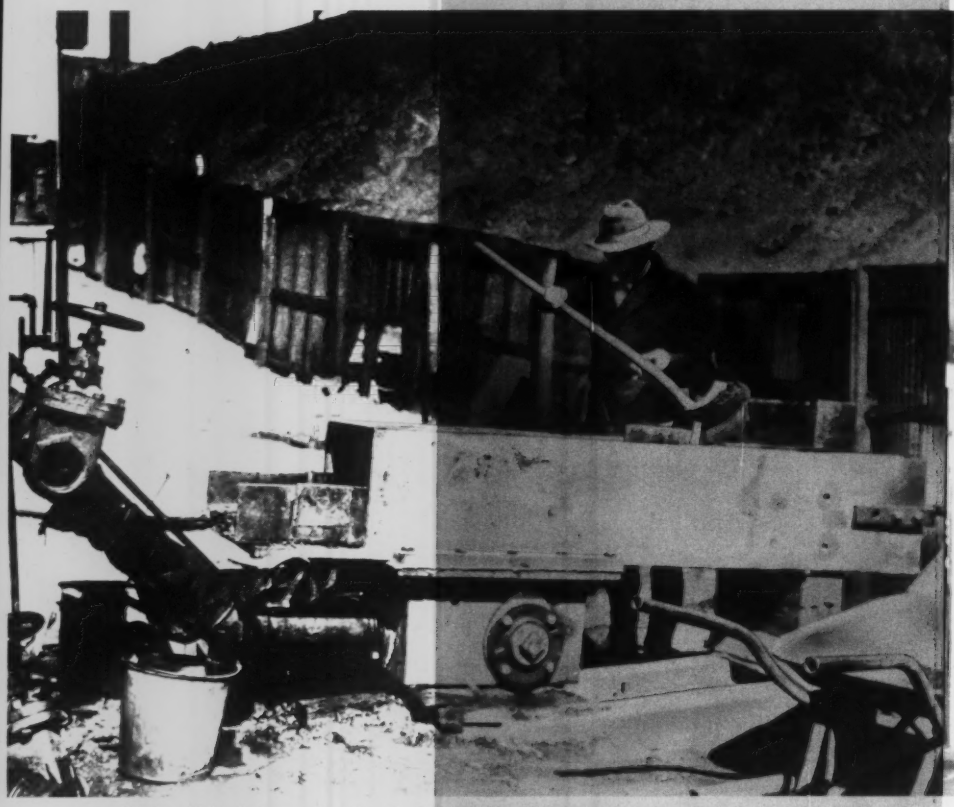
1906 The continuous sintering process was invented by Arthur S. Dwight and Richard L. Lloyd following extensive experiments at the Greene Consolidated Smelter in Cananea, Mexico. Patent was applied for.

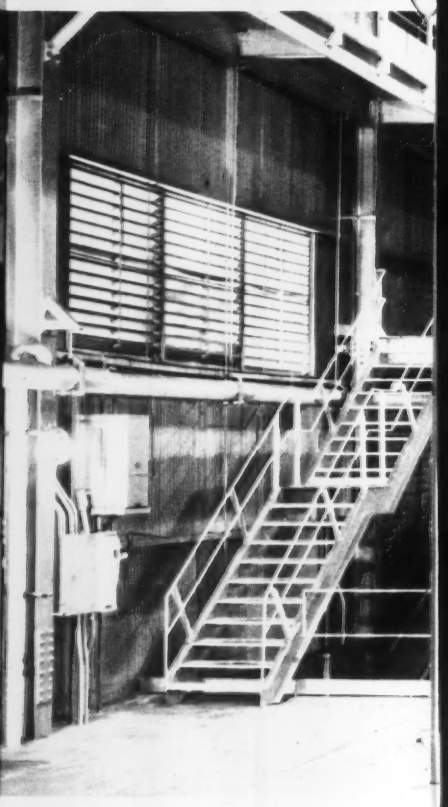
1908 The first patents on the process were granted.

1908 Dwight and Lloyd applied for a patent on the product — a cake of sinter — which was granted.

1908 The first commercially successful continuous sintering plant was installed at Salida, Colorado at a multi-metals smelter. It marked the establishment of the "straight line" or classic machine, the design that endures to this day.







Richard Lloyd shown charging the Dwight-Lloyd invention machine on the day the continuous sintering process was born. An original photo, preserved in the Dwight-Lloyd historical archives.

Now

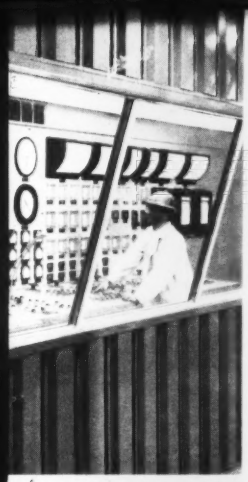
1908 Dwight began his first investigations of a sintered beneficiated blast furnace charge for ferrous industries.

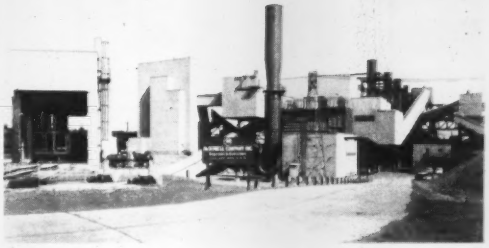
1909 Dwight and Lloyd granted a license to Lurgi-Gesellschaft to build sintering equipment under the Dwight-Lloyd patents.

1911 The first ferrous sintering plant was installed at Birdsboro, Pennsylvania. The plant was designed by Dwight and Lloyd and delivered by a licensee, American Ore Reclamation Company.

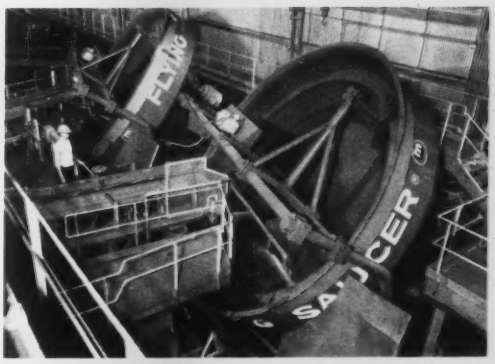
1920 The Dwight-Lloyd Research Laboratories were established to fully investigate minerals processes.

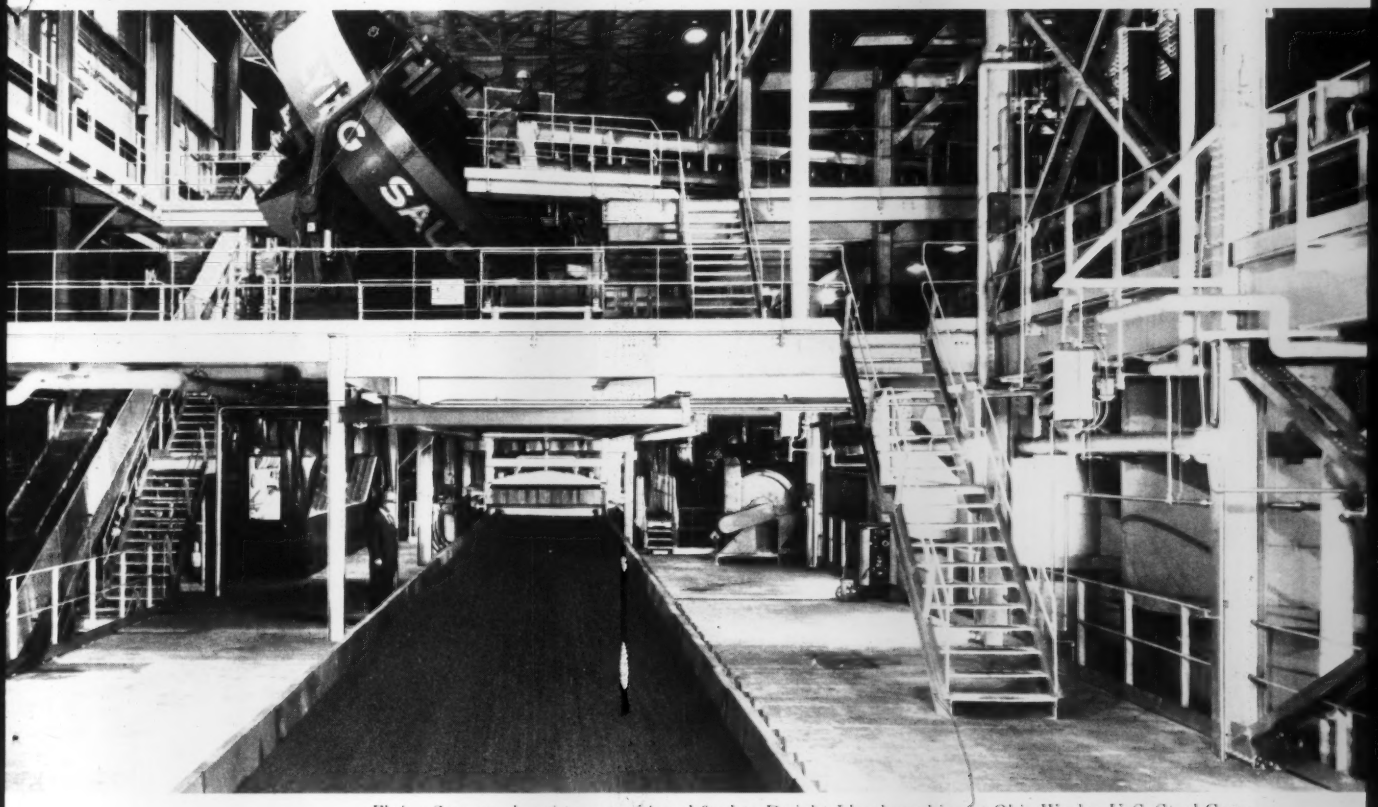
1955 McDowell Company, Inc. acquired the business and assets of Dwight and Lloyd, including the Laboratories, and moved them to Cleveland, greatly expanded.





Left, automated control center for new 5,000 ton per day single strand ferrous Dwight-Lloyd sintering plant. Above, general view of plant. Right, the McDowell-developed Flying Saucer®, unsurpassed as a sinter mixing and pelletizing disc.





Flying Saucers charging proportioned feed to Dwight-Lloyd machine at Ohio Works, U. S. Steel Corp.

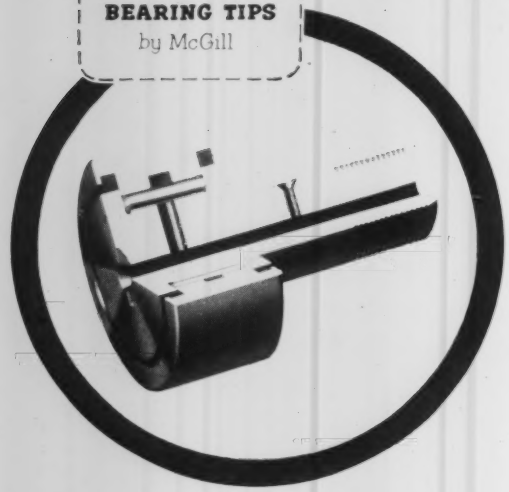
DWIGHT-LLOYD SHOWS SINTERING'S GOLDEN ERA

Big production ferrous installations are the newest Dwight-Lloyd sintering plants, developed to increase capacities of high-investment blast furnaces through beneficiation of raw materials. This acknowledges the work of our illustrious ancestors, the American metallurgists Dwight and Lloyd, who invented and pioneered continuous sintering, and proved to Illinois Steel Co. in 1908 the economical merit of sinter as blast furnace feed.

Culminating fifty years' practice, today's rugged Dwight-Lloyd plants reflect advanced McDowell engineering *and U.S. tonnage experience* in 1) proportioning and blending, 2) ignition, 3) burning and 4) cooling — all pilot-plant-proved in our famous Dwight-Lloyd Research Laboratories, established by the inventors in 1920, busy ever since on behalf of an international clientele engaged in all phases of minerals processing. Exclusive: Wellman hell-for-stout fabrication.

Dwight-Lloyd Division, McDowell Company Inc. • Cleveland 10, Ohio, U.S.A.

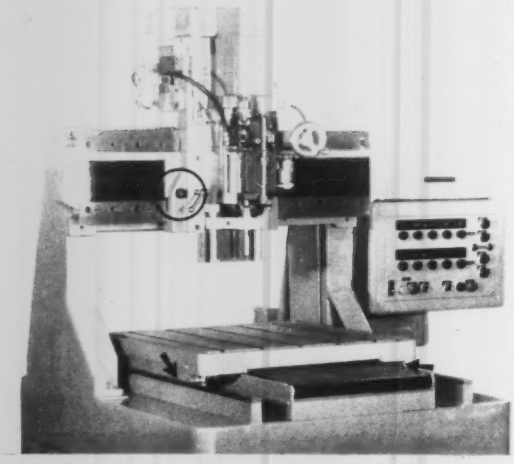
BEARING TIPS
by McGill



McGILL sealed CAMROL® bearings protect roller follower efficiency — prelubricated to reduce maintenance

Sealed SCF series bearings add protection from contamination to the extra performance advantages of McGill CAMROL cam followers. Specially treated labyrinth seals at the roller ends keep out moisture, dirt, chips, etc. All exposed surfaces are treated to provide a corrosion resistant black ferrous oxide finish.

The sealed construction with a channeled grease reservoir in the outer race bore eliminates need for frequent relubrication. Maintenance is reduced and can be eliminated in inaccessible mountings. Specify standard bearings and avoid building up followers with extra seals.



Sealed CAMROL bearings as table and crosshead rollers in tape-controlled Hillyer drilling machine

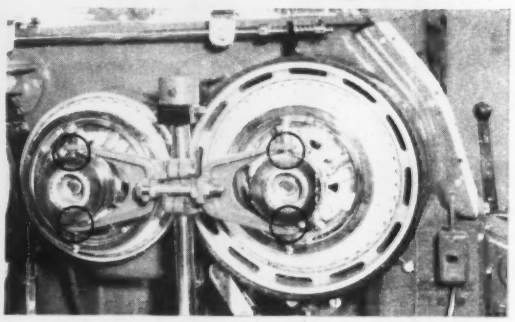
CAMROL bearings provide smooth, accurate motion as load carrying rollers for table and crosshead motion of this tape-controlled, precision drilling machine manufactured by HILLYER CORPORATION. Use of these bearings has simplified construction and improved accuracy. They have eliminated the manufacture of shaft and retainer assemblies and increased load capacities. The corrosion resistant finish has also eliminated the need for plating bearings. Ball bearings formerly used cracked under the same loads. Operating speeds are 400 RPM and loads are 2000 pounds. The bearings are prelubricated and sealed to keep maintenance at a minimum.

Sealed CAMROL bearings replace bronze rings in shovel clutches

UNIT CRANE & SHOVEL CORPORATION is using SCF SEALED CAMROL bearings in clutch shifter yokes in their ½ and ¼ yard power cranes and shovels and Model 360 MARINER 30-ton cranes. Shown is a closeup of two of the five clutches which control the hoist drum and the hold drum and various actions of the machines. The bronze collars formerly used were higher in initial cost than the CAMROL bearings. Their use also required considerable machining and the addition of component parts such as bolts, spacers, etc.

The CAMROL bearings in this application promise better, more accurate control than the bronze shifter rings which tend to become "sloppy" with wear.

The integral seal feature of the bearings protects their performance under field conditions and reduces relubrication requirements.



engineered electrical products

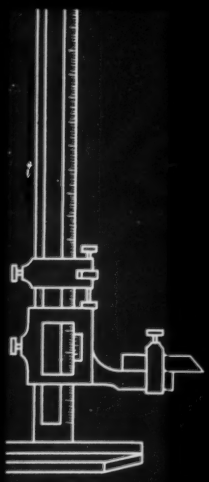
McGILL

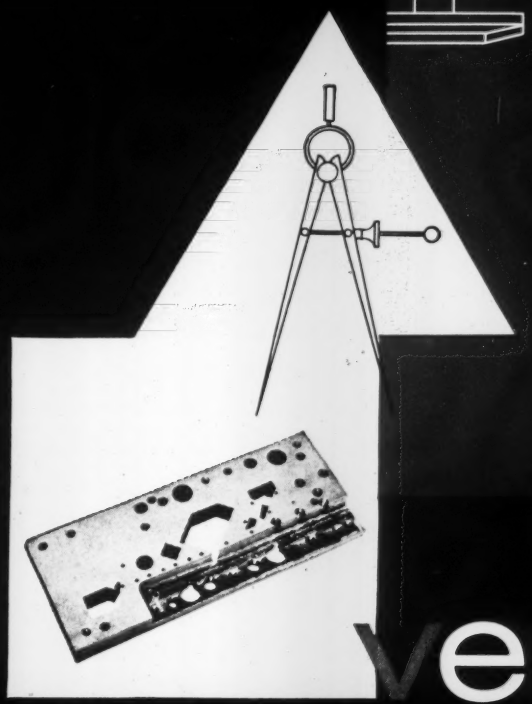
precision needle roller bearings

SEND FOR CATALOG No. 52-A

MULTIROL — GUIDEROL — CAMROL

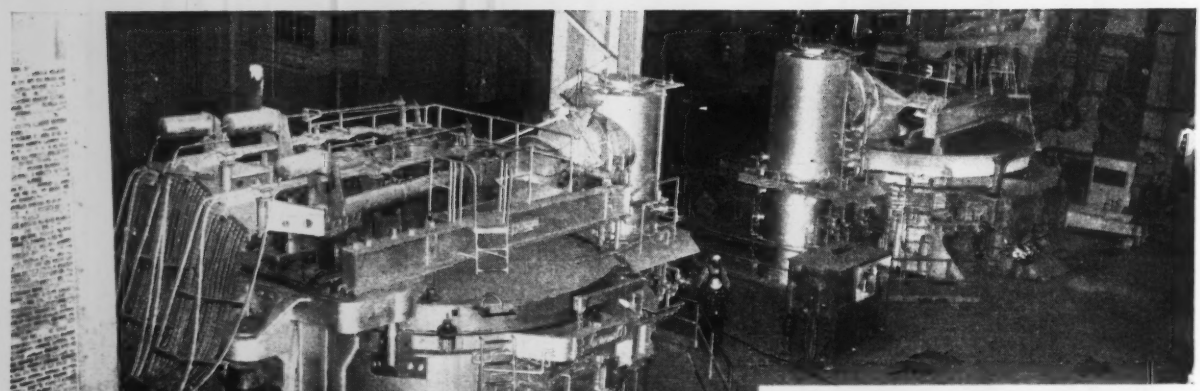
McGILL MANUFACTURING COMPANY, INC., BEARING DIV., 301 N. LAFAYETTE ST., VALPARAISO, INDIANA



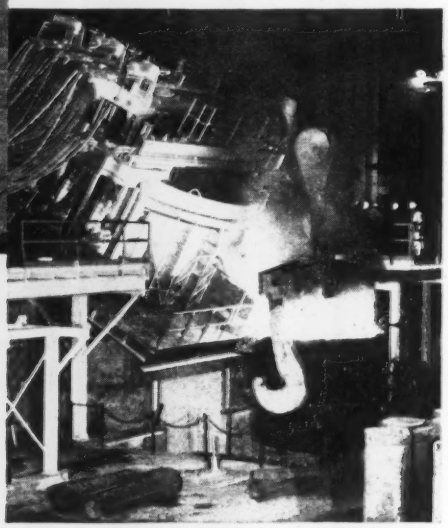


VEGA air-hardening tool and die steel offers safety in hardening unmatched in the industry. Even intricate dies with many cutouts, sharp corners and thin sections come through heat treatment with outstanding freedom from warpage and size change. VEGA is a tough steel specially developed by Carpenter to combine the machining properties of an oil-hardening grade with the safety in hardening of an air-hardening steel. On job after job, VEGA has outperformed any other grade ever tried! Order today from your nearby Carpenter SERVICE-CENTER.

the *Carpenter* Steel Company, Reading, Pa.



Lectromelt's smooth-operating hydraulic mechanism assures rapid, accurate forward tilting for pouring, backward tilting for slag-off.



LECTROMELT FURNACES

replace open hearths...

increase ingot capacity 70%

...lower production costs

Two new 100-ton Lectromelt furnaces . . . largest electric-arc furnaces in the eleven western states . . . recently replaced gas-fired and oil-fired open hearths in a leading West Coast steel mill.

Now, a heat takes 4½ hours or less from the time the first scrap steel is placed in the furnace until the molten steel is ready to pour. Each Lectromelt furnace produces an average of 25 tons of ingots per hour. Capacity of the plant has been boosted from 246,000 to an estimated 420,000 ingot tons per year.

Top-charging Lectromelt furnaces are increasing metal-producing capacity all over the world. Users report higher tonnage per man-hour, lower power consumption, savings in electrodes and refractories. Precise control possible with Lectromelt furnaces contributes to greater uniformity and more accurate alloying of metals.

For complete technical data—ask for a copy of Catalog 10. Write Lectromelt Furnace Division, McGraw-Edison Company, 323 32nd Street, Pittsburgh 30, Pa.

McGRAW-EDISON

Lectromelt®

CANADA: Canefco Limited, Toronto . . . ARGENTINA: Master Argentina, Buenos Aires . . . ITALY: Forni Stein, Genova . . . ENGLAND: Electric Furnace Co., Ltd., Wevbridge . . . GERMANY: Demag-Elektrometallurgie, GmbH, Duisburg . . . SPAIN: General Electrica Espanola, Bilbao . . . FRANCE: Stein et Roubaix, Paris . . . BELGIUM: S. A. Stein & Roubaix, Bressoux-Liege . . . JAPAN: Daido Steel Company, Ltd., Nagoya

CALENDAR
OF MEETINGS

Nov. 3-5, National Fluid Power Association: Fall meeting, Drake Hotel, Chicago. Association's address: 1618 Orrington Ave., Evanston, Ill. Executive secretary: Barrett Rogers.

Nov. 5-6, Society of Automotive Engineers: National fuels and lubricants meeting, Mayo Hotel, Tulsa, Okla. Society's address: 485 Lexington Ave., New York 17, N. Y., Secretary: John A. C. Warner.

Nov. 5-7, Grinding Wheel Institute and Abrasive Grain Association: Fall meeting, Statler-Hilton Hotel, Buffalo. Managers: Thomas Associates Inc., 2130 Keith Bldg., Cleveland 15, Ohio.

Nov. 5-7, Porcelain Enamel Institute: Shop practice forum, University of Illinois and Urbana Lincoln Hotel, Urbana, Ill. Institute's address: 1145 19th St. N.W., Washington 6, D. C. Managing director: John C. Oliver.

Nov. 5-9, National Tool & Die Manufacturers Association: Annual convention, Sheraton Hotel, Philadelphia. Association's address: 907 Public Square Bldg., Cleveland 13, Ohio. Executive vice president: George S. Eaton.

Nov. 6-7, Galvanizers Committee: Annual meeting, Pick-Roosevelt Hotel, Pittsburgh. Sponsor: American Zinc Institute, 60 E. 42nd St., New York 17, N. Y.

Nov. 10-12, Steel Founders' Society of America: Technical and operating conference, Carter Hotel, Cleveland. Society's address: 606 Terminal Tower, Cleveland 13, Ohio. Executive vice president: F. Kermit Donaldson.

Nov. 10-13, National Electrical Manufacturers Association: Annual meeting, Traymore Hotel, Atlantic City, N. J. Association's address: 155 E. 44th St., New York 17, N. Y. Managing director: Joseph F. Miller.

Nov. 11-13, Investment Casting Institute: Annual meeting, Hotel Roosevelt, New York. Institute's address: 27 E. Monroe St., Chicago 3, Ill. Executive director: Harry P. Dolan.

Nov. 12-14, Society for Experimental Stress Analysis: Annual meeting, Hotel Sheraton-Ten Eyck Hotel, Albany, N. Y. Society's address: P. O. Box 168, Cambridge 39, Mass. Secretary-treasurer: W. M. Murray.

Nov. 13, National Industrial Conference Board Inc.: General session for all associations, Cleveland Hotel, Cleveland. Board's address: 460 Park Ave., New York 22, N. Y. Secretary: Herbert S. Briggs.

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Spark Testing by an experienced technician quickly detects mixed steels. This is one of more than 45 critical Quality Controls used in the production of your order for PACIFIC Mechanical and Pressure Tubing—your assurance that it is Correct to Specs!
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PATCO manufactures Cold Drawn Carbon, Alloy and Stainless Steel, Seamless and Welded Tubing. Special Shapes and Bi-Metals. Cold Drawn Carbon and Alloy Bars. Ground and Polished Shafting. Engineering Assistance Available for your Special Problem.
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Purchasing Week
McGRAW-HILL'S NATIONAL NEWSPAPER OF PURCHASING
Vol. 1 No. 41
New York, N. Y., October 13, 1958
$6 A YEAR U. S. AND CANADA
$25 A YEAR FOREIGN
Price Perspective 2
Washington Perspective 4
Foreign Perspective 8
Purchasing Week Asks You 11
New Products 16
Profitable Reading for P.A.'s 19
Financing Inventories To Become Tougher
Washington—The cost of borrowing money is going up. Eventually it will get tougher to obtain financing for inventory growth although bankers appear to have plenty of money for that type of borrowing now.
This is the credit outlook from a purchasing point of view over the next six months as seen by government officials specializing in finance. It stems from a drive by the Federal Reserve and Administration to halt inflation by tightening credit.
Reports from bankers around the country indicate general agreeability toward short term loans, but a growing reluctance for long term, capital goods type of borrowing already's developing but not in all areas. So far

. . . Steel users may find tighter inventory controls the best hedge

"Let the other fellow carry the inventory" is a well-tried business principle that is taking on added significance for many manufacturers today.

As featured in a recent issue of PURCHASING WEEK, the cost of borrowing money is going up. Over the next six months, inventory growth financing will get tougher. Even now, the publication pointed out, there's a growing reluctance by bankers to make long-term, capital-goods type loans. The newspaper concluded that interest rates, too, are heading rapidly toward the high levels reached during 1957's tight-money period.

Faced with these new complications, steel buyers may well find continuance of recession-born, modified inventory policies the best hedge against tight money and higher interest.

For example, during the recent slump many companies proved to themselves that the varied facilities of steel service centers cut costs all along the line. They avoided long-term commitments and substantially reduced their need to borrow money. They released precious working capital for more productive purposes . . . freed valuable storage space . . . reduced handling costs and cut scrap loss, interest, insurance, taxes, etc.

This kind of cost-conscious buying is especially sound when you consider the unusually broad scope of Ryerson stocks, and the speed and dependability of Ryerson services. Buying cut-to-size steel—any kind, shape, size and quantity—gives you complete flexibility to meet quick shifts in production schedules. And you have the added assurance of getting uniform, high-quality steel—unequaled Ryerson *certified* quality.

Your Ryerson representative is well qualified to review the facts and help you get the maximum value for your steel-buying dollars. Call him any time to analyze your requirements with you.

RYERSON CERTIFIED QUALITY

RYERSON STEEL®

Member of the MILAM® Steel Family

Principal Products: Carbon, alloy and stainless steel—bars, structurals, plates, sheets, tubing—aluminum, industrial plastics, metalworking machinery, etc.

JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK • BOSTON • WALLINGFORD, CONN. • PHILADELPHIA • CHARLOTTE • CINCINNATI • CLEVELAND DETROIT • PITTSBURGH • BUFFALO • INDIANAPOLIS • CHICAGO • MILWAUKEE • ST. LOUIS • LOS ANGELES • SAN FRANCISCO • SPOKANE • SEATTLE

STEEL

November 3, 1958

Metalworking Outlook

Canada Gives Clue on Steel Labor

Watch Canadian labor negotiations in steel for a clue to what may happen in the U. S. next year. Algoma Steel Corp., Sault Ste. Marie, Ont., Canada's second largest producer, has signed with the United Steelworkers of America. Terms include wage hikes totaling 24 cents over the three-year life of the contract, plus fringe benefits estimated at another 3 cents hourly. But the largest producer, Steel Co. of Canada Ltd., Hamilton, Ont., is holding out and taking a strike.

Western Steel Use Recovering

Steel consumption in California, Washington, Oregon, Arizona, Nevada, Utah, and Idaho will account for about 6.6 million tons of mill products in 1959. Kaiser Steel Corp. predicts that will be 10 per cent better than 1958's usage but under the record 1957 receipts of 6.8 million tons. Major reasons behind the dip in western mill shipments this year: Reduced activity in most consuming industries and the reduction of inventories. Much of the stock cutting has been in plates and shapes.

Hawaii Industrializing

Keep an eye on Hawaii's widening industrial horizon. Its first steel mill will be operating next summer, and its first oil refinery will be producing by late 1960. Hawaiian Western Steel Ltd., headed by Philip E. Spalding Jr., will turn out 60 to 75 tons of reinforcing rods a day for Hawaiian construction and eventually will make 25,000 tons of steel yearly. A rolling mill will use steel ingots shipped from Canada. An electric furnace will melt local scrap. Facilities will cost $1.5 million. The refinery, costing $40 million, is being built by Standard Oil Co. of California.

What Designers Think of Auto Styles

What do industrial designers think of automotive styling? Listen to Designer Carl Sundberg who polled his colleagues: "With a couple of exceptions, 1958 was one of the saddest years in the history of auto styling. We estimate that 90 per cent of the cars were worse stylewise than in 1957. Some 60 per cent of the new cars are an improvement over '58s. All the cars that are improved have one thing in common—less chrome or more tasteful use of it. Buick . . . is one of the most improved cars. But I think a little more restraint on the rear end would have been better. I think the 1957 Imperial is still the best example of rear-fender treatment."

Productivity To Gain at Least 3%

Productivity in private industry will probably increase at an average rate of 3 or 3.5 per cent annually on a long term basis. So believes Ewan Clague, commissioner of labor statistics. Writing for a University of Michigan-Wayne State University publication, he thinks the present business recovery will lead to some good gains. He also believes business and labor should take it "a little easier" in tieing wage escalator clauses to the cost-of-living

Technical Outlook—Page 69 Market Outlook—Page 105

index. His advice: If you must escalate, base yourself on wider fluctuations in the index, or on less frequent comparisons.

Get Set for the Boom

Are you underestimating the extent of the coming boom—and making inadequate plans for plant modernization? Too many are, believes Richard S. Murphy of C.I.T. Corp., industrial financing firm. "Many manufacturers tried to get through the recession without investing in new equipment and saw the effects of that decision in dwindling profits. Today, almost one-fourth of the machine tools in use are at least 20 years old and more than 65 per cent are at least ten years old."

Structural Steel Bookings Up

Here's an industry that's doing far better than it thought it would at the start of 1958: Members of the American Institute of Steel Construction learned last week that structural steel bookings for this year will be 400,000 tons more than expected—probably 2,650,000 tons for the year. Shipments are expected to exceed 3.5 million tons. Unlike the 1955-56 boom, which was based chiefly on industrial and housing construction, 1958-59 will be dominated to a greater degree by government work. In the first half, government business accounted for 45 per cent of the total, compared with some one-third in 1957.

Slip in Electronics

Look for 1958 output of electronic equipment and components to hit $6.9 billion, off about $100 million from the 1957 record. This year will be the first since the advent of television in which total electronics output did not increase. Yet expanding military production and a greater-than-seasonal upswing in radio and television receiver output since midyear are resulting in a strong second half, says the Business & Defense Services Administration.

The Peaceful Atom May Be Delayed

A variety of peaceful applications of atomic bombs (from oil development to the opening of rivers and harbors) are under consideration by the Atomic Energy Commission. The program, Operation Plowshare, could begin in the late spring of 1959, says AEC Chairman John McCone, but continued negotiations with the Russians to stop atomic tests could delay it . . . Mr. McCone says the AEC will soon sign more contracts for the delivery of uranium during 1962-66.

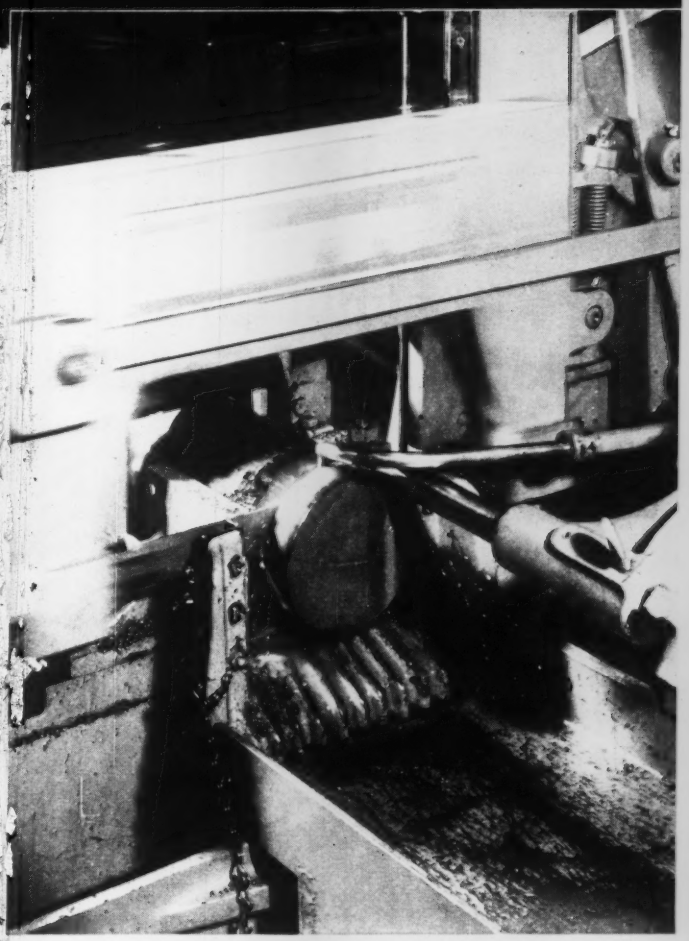
Communist Straws in the Wind

An increased volume of Russian steel will appear in world markets, predicts Max D. Howell, American Iron & Steel Institute's executive vice president . . . Soviet scientists report the discovery of "rich veins of excellent iron ore" in Antarctica . . . China's program to double steel production is snagged. Reason: The poor quality of pig iron coming from its primitive blast furnaces.

5 Basic Reasons why MARVEL HACK SAWS CUT-OFF MORE ACCURATELY...

The consistently accurate performance of MARVEL Heavy Duty Hack Saws is no accident. MARVEL engineers knew, many years ago, that to produce and maintain accurate cutting-off, a hack saw must be designed and built like a fine machine tool.

Some of the basic design principles built into the modern MARVEL Hack Sawing System that makes it the most accurate cutting-off method you can use are:



1. V-Way Design...Greater Rigidity

Upright and Saddle are precision machined and fitted to form a rigid, integral unit capable of withstanding any cutting load with no deflection or side movement.

2. Anti-Friction Bearing Construction

Anti-friction ball or roller bearings are used at all load carrying points. Even the strongly braced saw frame reciprocates on heavy duty, fully enclosed preloaded ball bearings which provide permanent, frictionless rigidity and true-running, straight line cutting strokes.

3. Minimum Blade Frame Reach

Close-coupled design and crank lever action of MARVEL Saws keeps the saw frame and blade reach very short in relation to the vertical V-ways on which the unit is mounted. This insures optimum rigidity, even under the most severe operating conditions.

4. Positive Relief Blade Lift

On the return stroke, positive relief lift raises the blade to provide proper and "cushioned" lead-in on the next cutting stroke. This prolongs blade sharpness, life and accuracy.

5. Rigid Cutting Tool

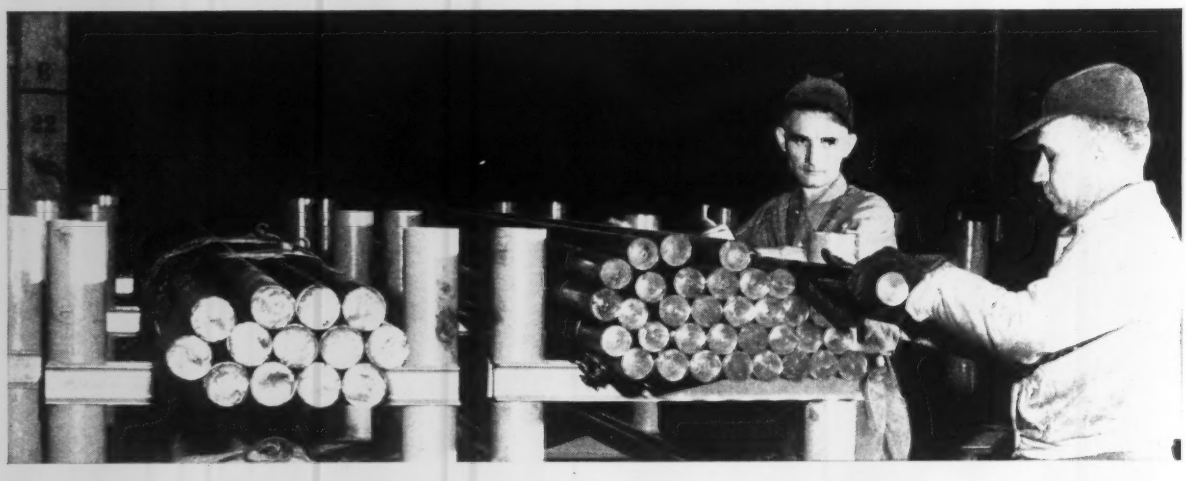
Cutting-off accuracy requires a rigidly held, relatively short cutting tool. MARVEL Unbreakable High-Speed-Edge Hack Saw Blades, which combine a narrow high speed steel cutting edge permanently welded to a tough alloy steel body, can be tensioned from 200% to 300% more taut than ordinary blades. This provides a most rigid cutting edge.

Write for the MARVEL Catalog and the complete story on MARVEL METAL CUTTING SAWS

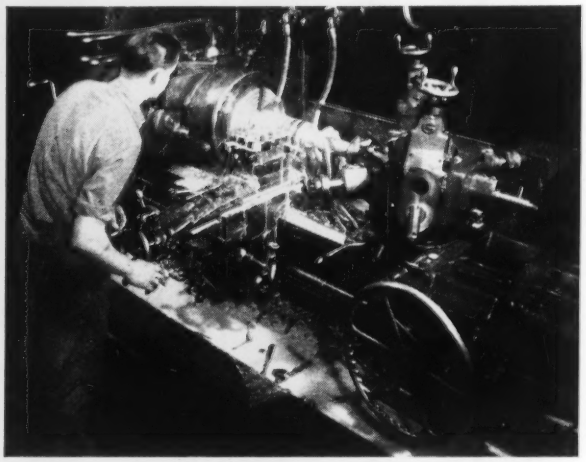
MARVEL Metal Cutting SAWS
Better Machines-Better Blades

ARMSTRONG-BLUM MFG. CO.
5700 W. BLOOMINGDALE AVE., CHICAGO 39, ILL.

Metal users, save money!



simplify materials control... standardize manufacturing processes



by standardizing on two alloy steels... 4340 and 4620

4340 THROUGH-HARDENING – Use AISI 4340 for moderate-to-heavy section parts . . . to get maximum strength, toughness, reliability. It's readily annealed to facilitate machining . . . can even be machined as heat treated in many cases. Welds readily with normal precautions. Responds reliably to heat treatment.

4620 CARBURIZING – Use AISI 4620 for all except the very heaviest duty carburized parts. It is the steel least apt to distort in heat treating. Case hardens easily with excellent case toughness. Shows uniform response to treating. You can treat mixed furnace loads . . . eliminate a re-heating cycle . . . *save more money.*

AMERICAN STEEL WAREHOUSE ASS'N

Easy to Get . . . Both these steels are carried by Steel Service Centers from coast to coast . . . ready for delivery on a "next door" basis. For a list of these sources, write: 67 Wall St., New York 5, N. Y.

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street — New York 5, N. Y.

INCO TRADE MARK

Tell Your Price Story

Look for Sen. Estes Kefauver's Subcommittee on Antitrust & Monopoly to resume its attack on industry before Congress reconvenes in January. The subject: Administered prices and their alleged influence on inflation.

It's an even safer bet that the attack will be centered on the steel industry, but wherever the blow falls, now is the time for all metalworking management to get ready for the new onslaught.

The strategy is simple, yet effective. Start telling your story now, to the public and to your employees. Don't wait until the real issues are clouded by a government hearing. More importantly, use facts, not emotion. Follow the high example set by metalworking representatives at the last session of Congress.

Senator Kefauver charged that the $6 a ton steel price increase last year cost direct buyers $540 million; that the cost to the consumer was undoubtedly pyramided several times that amount.

In reply, Chairman Roger Blough of U. S. Steel showed that $6 times the 64 million tons of finished steel shipped came to a lot less than $540 million; he also showed that the dollars from increased billings—and a lot more—were needed to pay for increases in wages and other costs.

To counter the argument that improved technology offsets higher costs, Mr. Blough used the government's own figures. He showed that a 3 per cent annual increase in manhour productivity doesn't offset an 8 per cent annual increase in employment costs.

General Motors' Harlow Curtice broke down the $125 increase in the cost of building 1958 cars to show that higher payroll costs accounted for $52, or 42 per cent. Increased material costs, including steel, amounted to $35, or 28 per cent; new tooling $24, or 19 per cent; and higher local taxes and depreciation the remainder. Of the $27 increase in steel costs, $9 was attributed to increased weight and size.

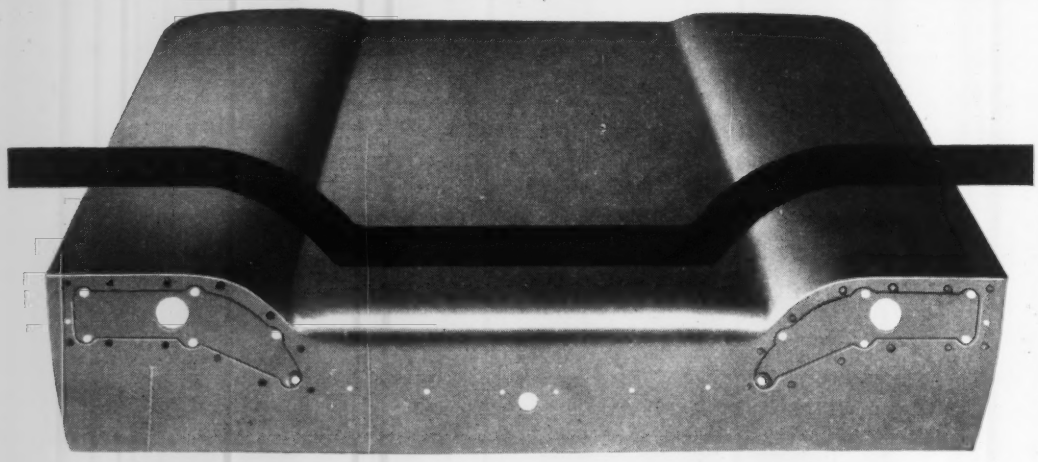
With specifics like those, industry can defeat the dangerous generalities made by political opportunists. (Even the term "administered prices" carries the connotation of conspiracy.)

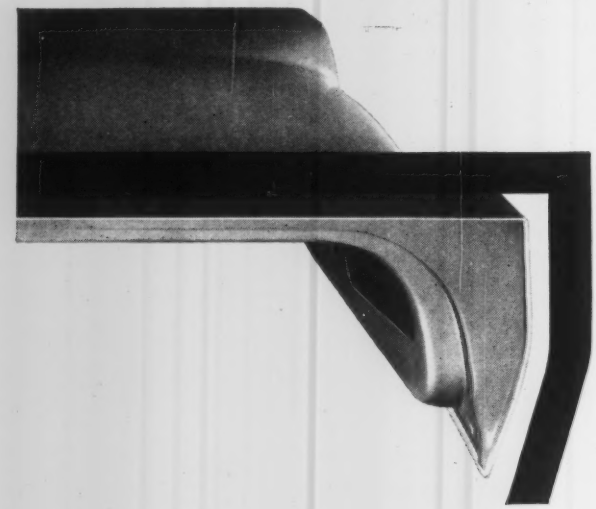
The facts are there. The facts are clear. Tell them in terms of your business. Don't wait for a Congressional investigation.

Irwin H. Such
EDITOR-IN-CHIEF

Inland "Job-Tailored" cold rolled sheets work better

product: AUTOMOBILE TRUNK LID





problem:

An automobile manufacturer was having difficulty finding a steel sheet that would take the severe fabricating required to make the trunk lid of a new model. The part called for a tough draw, and the metal flow was very restricted. Finish of the steel was also an important factor. No one could provide a steel sheet that would do the job without excessive breakage.

solution:

Inland came up with a special Drawing Quality Killed Steel, "job-tailored" for this part. The steel took the difficult fabricating operation... solved the problem... and permitted the manufacturer to get his new model automobile out on schedule.

INLAND STEEL

30 West Monroe Street, Chicago 3, Illinois

Sales Offices: Chicago • Milwaukee • St. Paul • Davenport • St. Louis
Kansas City • Indianapolis • Detroit • New York

At your service soon . . . Inland's new Cold Mill and a 50% increase in capacity for cold rolled sheet products.

INLAND

Cold Rolled Sheets

Metalworking's Third Quarter Earnings Start Upward

(Net Profit)

SELECTED MANUFACTURERS	1958	1957
Aetna-Standard Engineering Co.	$152,922	$2 8,385
Air Reduction Co.	3,199,688	4,1 1,674
Allis-Chalmers Mfg. Co.	4,929,106	3,421,866
Aluminum Co. of America	13,252,905	21,523,928
American Metal Products Co.	(a) 30,736	966,439
ASR Products Corp.	349,105	381,132
Baldwin-Lima-Hamilton Corp.	952,274	1,640,684
Bell Aircraft Corp.	1,211,233	967,626
Bell & Howell Co.	868,535	760,939
Bridgeport Brass Co.	1,122,668	908,955
Budd Co.	(a) 1,468,000	2 191,870
Burroughs Corp.	1,620,926	875,948
Carborundum Co.	604,543	948,673
Caterpillar Tractor Co.	14,087,077	9,888,997
Central Foundry Co.	241,708	203,860
Chance Vought Aircraft Inc.	2,487,666	1,546,065
Chrysler Corp.	(a) 20,000,000	13,834,729
Clark Equipment Co.	1,704,672	2,078,566
Clevite Corp.	931,000	754,638
Continental Can Co. Inc.	16,975,000	14,537,000
Cooper-Bessemer Corp.	801,000	1,562,000
Copper Range Co.	621,387	5,552
Eastman Kodak Co.	26,299,098	25,434,611
Eaton Mfg. Co.	1,098,076	2,086,044
Ekco Products Co.	900,717	1,008,497
Electrolux Corp.	453,937	309,206
Ferro Corp.	488,908	263,876
Firth Sterling Inc.	(a) 218,100	19,500
Ford Motor Co.	(a) 21,600,000	58,500,000
General Electric Co.	58,589,000	55,165,000
General Instrument Corp.	266,561	169,599
General Motors Corp.	65,633,266	122,175,621
Gillette Co.	7,455,525	3 5,253
Hupp Corp.	33,000	(a) 3 ,000
Hussmann Refrigerator Co.	830,234	56 ,975
IBM Corp.	40,855,388	22,32 ,084
Jack & Heintz Inc.	170,000	12 ,000
Jaeger Machine Co.	289,070	41 ,170
Johns-Manville Corp.	7,032,000	5,73 ,000
Kaiser Aluminum & Chemical Corp.	6,905,000	6,83 ,000
Kennecott Copper Corp.	14,811,203	15,66 ,272
Koppers Co. Inc.	1,558,482	2,079,356
Lamson & Sessions Co.	155,245	427,607
Magma Copper Co.	129,838	1,205,578
Maytag Co.	2,591,975	1,906,145
Metal & Thermit Corp.	216,395	275,843
Minneapolis-Honeywell Regulator Co.	5,847,624	4,143,615
Monarch Machine Tool Co.	(a) 7,794	208,225
National Lead Co.	11,515,329	12,630,392
Otis Elevator Co.	3,455,312	3,119,366
Philco Corp.	1,774,000	1,477,000
Porter (H. K.) Company Inc.	758,309	1,141,804
Radio Corp. of America	6,254,000	8,009,000
Raytheon Mfg. Co.	2,491,000	962,000
Reynolds Metals Co.	8,860,932	9,157,788
Rockwell Mfg. Co.	2,175,000	1,946,000
Simonds Saw & Steel Co.	592,472	752,941
Studebaker-Packard Corp.	(a) 9,218,346	(a) 5,555,487
Sylvania Electric Products Inc.	3,779,387	3,853,571
Thompson Products Inc.	1,504,451	2,244,984
Timken Roller Bearing Co.	29,549	4,775,563
Union Carbide Corp.	34,608,087	34,000,965
U. S. Pipe & Foundry Co.	2,197,688	2,626,383
White Motor Co.	1,545,041	1,550,080
Zenith Radio Corp.	3,547,877	2,487,164

Steel Fares Better, Too

SELECTED COMPANIES	1958	1957
Acme Steel Co.	1,631,088	1,447,145
Alan Wood Steel Co.	538,650	(a) 142,086
Allegheny Ludlum Steel Corp.	1,155,429	1,983,861
Armco Steel Corp.	12,876,598	17,600,617
Barium Steel Corp.	(a) 206,903	123,000
Carpenter Steel Co.	66,120	948,059
Colorado Fuel & Iron Corp.	1,607,143	3,295,509
Continental Steel Corp.	1,021,236	530,475
Copperweld Steel Co.	898,028	157,045
Crucible Steel Co. of America	854,374	(a) 225,119
Detroit Steel Corp.	306,533	159,889
Eastern Stainless Steel Corp.	753,449	298,693
Granite City Steel Co.	2,320,977	1,623,303
Inland Steel Co.	12,118,009	13,382,172
Jones & Laughlin Steel Corp.	6,698,000	11,377,000
Kaiser Steel Corp.	(a) 1,922,742	3,445,155
Lone Star Steel Co.	162,806	2,775,802
Lukens Steel Co.	479,982	2,330,637
McLouth Steel Corp.	2,766,781	2,166,371
National Steel Corp.	10,892,433	8,041,074
Pittsburgh Steel Co.	(a) 291,638	654,049
Republic Steel Corp.	15,184,641	20,121,297
Sharon Steel Corp.	66,484	213,852
U. S. Steel Corp.	74,922,924	97,555,683
Washington Steel Corp.	553,963	321,550
Youngstown Sheet & Tube Co.	3,641,906	9,890,247

(a) Net loss. 1. Not comparable due to acquisition of Northeastern Steel Corp.

Fourth Quarter To Hit '58 Peak

THE LAST QUARTER is shaping up as your best 1958 profit period by far. The downtrend reversed itself around midyear, and the earnings curve is gaining altitude much faster than had been anticipated.

In the third quarter, only about three out of seven companies reported higher earnings than they had in 1957's third period. But a hefty majority showed gains over 1958's second period. For automakers and their suppliers, however, the third quarter generally brought more erosion of earnings.

• **Steel** — Steel industry operations rose from the 1958 low (53 per cent of capacity) during the first week of the third quarter to a high of 68 per cent at the period's close. Earnings rose proportionately. Carpenter Steel Co. earned $66,120 though operating at only 37 per cent of capacity.

With their eye on 80-plus operations before yearend, steelmakers predict sharp profit gains in the

final quarter. Examples:

C. M. White, chairman, Republic Steel Corp.: "The fourth quarter should show a substantial increase in shipments and earnings. Improvement will continue into 1959."

C. R. Hook, chairman, Armco Steel Corp.: "Our fourth quarter will be the best of the year." He expects Armco's last quarter operations to average more than 80 per cent of capacity (vs. 69.7 per cent for the third period).

E. J. Hanley, president, Allegheny Ludlum Steel Corp.: "Order improvement has come on a broad front. And current purchases are more closely related to production levels."

Joseph L. Block, president, Inland Steel Co.: "Our fourth quarter operating rate will be 90 per cent or more of capacity."

N. P. Veeder, chairman, Granite City Steel Co.: "Our present rate of incoming orders is higher than it has been at any time in the last two years. We expect to operate at or near capacity for the rest of the year."

• **Why Gains Loom Large**—Many metalworking executives look for fourth quarter profit gains to be greater, relatively, than sales increases. That condition can be traced to: 1. Firmer prices. 2. Better inventory balance. 3. The effect of cost reduction programs.

Stewart-Warner Corp., for example, had third quarter net earnings 8 per cent greater than in the like '57 period—despite a 16 per cent lower sales volume. Rockwell Mfg. Co. gained $229,000 in profits on $1.5 million less sales.

• **Depends on Detroit**—If Detroit builds 1.4 million cars in the last quarter, as predicted, metalworking's profits for the period will probably compare favorably with those in 1957's final quarter. Only 2.9 million cars were produced in the first nine months of this year.

• **Other Upturns Start**—Appliance production is picking up (see STEEL, Oct. 6, p. 41); farm equipment sales are running well ahead of last year's. The business machine industry, among the last to feel the recession, is now moving back to record levels. Rising prices are brightening the copper industry's profit outlook.

STEEL Polls Showgoers on Sales, Research, Products

U. S. METALWORKERS are expecting next year to be a good one. Sales will be increasing steadily; research and development spending will go higher; and outlays for new or modernized capital equipment will be above this year's.

Those statements represent the consensus of exhibitors and visitors polled by STEEL last week at the 40th National Metal Exposition & Congress in Cleveland. Upwards of 50,000 visitors streamed through the gates; exhibitors came from 23 states, the District of Columbia, and Denmark.

• **Optimism**—D. L. Bernhard, marketing manager, International Research & Development Co., Worthington, Ohio, voiced a general feeling at the show: "Our business will be 50 per cent better next year, if we make more of a sales effort. Sales will have to be made by effort, not just by calls."

A midwestern executive (steel castings) agreed that 1959 will show improvement, but he wouldn't buy the 50 per cent figure. "There are too many unknown factors for me to predict that much of an increase. We're looking for a long, steady increase rather than a boom."

E. H. Novak, co-owner of Cadillac Stamp Co., Detroit, adds: "We're as low (inventories) as we've ever been, but we're building up now in expectation of a damn good year next year."

• **Research**—Most of the companies queried by STEEL's editors plan to spend at least as much on R&D in 1959 as they did in 1958—and most of them ignored the recession in their R&D budgets this year.

Charles Powers, sales engineer, Zagar Inc., Cleveland, says his firm

spent more for research in 1958 than in any previous year. He adds that next year's outlay will depend on business.

William L. DeSenti, president, Mettler Machine Tool Inc., New Haven, Conn., adds that in his company "R&D spending will remain high, possibly exceed the 1958 figure." John Sedlacsik Jr., president, Ionic Electrostatic Corp., Garfield, N. J., says his firm will be spending more next year.

• **New Products**—Companies queried by STEEL revealed that products which didn't exist five years ago are making a big contribution to profits.

John H. Charpentier, sales manager, Fenn Mfg. Co., Newington, Conn., reports that 30 per cent of his company's profits come from products introduced since 1953. Others reported figures ranging from 5 to nearly 75 per cent.

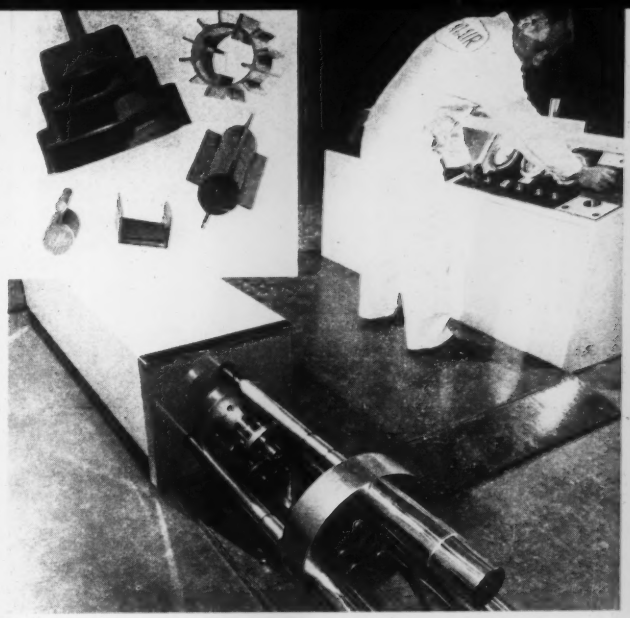
Significant new developments displayed included Convair's "Dynapak" (see story on this page). The Doehler-Jarvis exhibit gave evidence of the increasing importance of diecast aluminum.

Torrington Mfg. Co. exhibited its vertical, four slide forming machine. A departure from the horizontal layout, the equipment formed a complex clip used by General Electric as a replaceable die in enameling copper wire.

Detrex's dip painting machine (combined with a degreaser) attracted interest. Viewers watched sample parts on a conveyor pass through a vapor degreasing bath, air drying, then dip into a hot paint bath contained within the degreasing chamber. Parts emerged dry.

• **Leaded Steel**—Joseph T. Ryerson & Son, Chicago, introduced its new leaded steel tubing. Known as Ledloy 170, it is a cold drawn seamless product of low carbon analysis with 0.15 to 0.35 per cent lead added. Although its cost is 10 per cent higher than that of comparable tubing without lead, Ryerson spokesmen say the difference will be more than balanced by a 25 per cent productivity increase.

Several vacuum equipment builders had exhibits. Consolidated Dynamics Corp. showed its new vacuum induction furnace for heat treating, sintering, and brazing at temperatures up to 2500° F.



With this tool, you make parts in 1/1000 second, because . . .

Now You Can Explosive-Form

YOU COULD be at the threshold of your biggest production breakthroughs. Explosive forming, judged by many as one of the hottest ideas to hit the metalworking industry in a long time, is ready for commercial exploitation. (See STEEL, Aug. 25, p. 32.)

For the first time, you can buy equipment to take advantage of the process in your plant. The machines, called Dynapak, were demonstrated by the builder (Convair, a division of General Dynamics Corp.) at the Metal Show last week.

• **Potential**—Convair engineers have used the machines for forging, extrusion, forming, compacting, shearing and blanking, and extrusion casting. It will solve some of the problem jobs in these areas. It also bids fair to enhance many of metalworking's bread and butter forming jobs.

One jet engine maker has ordered a machine to forge turbine blades and buckets, hoping to get rid of all machining on the parts. A major maker of stainless steel is evaluating the machine to make a wide variety of architectural and trim shapes.

• **What It Does**—Parts formed at supervelocities, say up to 5000 in. a second, come out with surprising results. For one thing, part definition is nearly perfect.

Paper-thin sections can be extruded or forged (at least as thin as 0.005 in.) with no deformation or tearing. Surface finish of the part is as good as the tools. Minute draft allowances on forgings are easily handled.

• **How It Works**—The heart of the Dynapak is a gas-fired ram that's shot at the work blank or part. Depending on the size of the machine (there are three standard models), the ram delivers 40,000 to 1.5 million ft-lb of energy. The die is mounted on a dynamic reaction frame that absorbs the impact shock like the recoil action of a 5-in. gun.

It can be mounted on the shop floor, with no base, and held in place by common lag bolts.

Ralph G. Monsees, in charge of Convair's Dynapak program, says the machine is about one-fourth the size of conventional equipment of the same capacity, is inexpensive (the small Dynapak costs roughly $18,000), safe and easy to operate.

Wire Reinforcement Institute.

$51 Billion for Construction in 1959

YOU CAN COUNT ON construction to continue setting the economic pace next year despite tighter credit and higher costs. Estimates of dollar volume of new construction checked by STEEL range from $50 billion to $52 billion. Favored by most are the Labor Department's preliminary figures (see table), midway in the range. Even the lowest estimates put building at new peaks for 1959.

Repair and maintenance spending will swell the total construction picture to about $70 billion. Economists foresee construction passing the $100 billion mark at least by 1968, if it continues to increase its percentage of the gross national product (as it has been since 1946).

• **Trouble Spots?** — Government sources and construction associations generally discount the effects of tighter money and higher costs on construction outlays next year. H. C. Turner Jr., president, Turner Construction Co., New York, expects costs to rise. (Reasons: 1. Historically they move at twice the rate of the Wholesale Price Index. 2. The industry does not have mass production techniques available to it as readily as manufacturing firms.) But there appears to be no real advantage in postponing outlays since later ones probably would have to be increased.

• **Higher Costs**—Walter Schneider, director, construction industry division, Business & Defense Services Administration, notes employment is running about 700,000 less this year than last. The apparent inconsistency with higher dollar volume is partly caused by the use of more mechanized equipment (for highways and laying sewer and water lines, for example) and more functional designs of buildings, plus the use of more prefabricated components. He does not see costs rising more than 2 per cent next year.

• **Tighter Money**—Nor does he see any shortage of construction funds even with the Federal Reserve Board tightening credit. Arnold Chase, chief of the Bureau of Labor Statistics' construction statistics division, analyzes credit this way: "If there is no big upturn in capital expenditures by industry next year and the country's deficit in fiscal 1959 is less than the predicted $12 billion (corporate tax receipts should be more than estimated with the economy recovering as it is), then money will not be tight."

Credit could be tight in housing, however, say some Capitol Hill sources. Also there is the chance that down payments on FHA and VA loans will be increased. Rep. Albert Rains (D., Ala.), chairman of the Housing Subcommittee, predicts a decline in housing starts next year unless another $1 billion is voted by Congress for home loans.

• **Fight for Funds** — Introduction early next session of Representative Rains's proposal will probably start a funds tug-of-war between housing and highway interests. Highway trust fund expenditures have been exceeding receipts for the last three months, and Congress will be asked to provide funds from general revenues to keep the program on schedule.

Washington sources expect the housing bill to fail (if passed, they predict President Eisenhower will veto it), and think highways will be in trouble if the states don't go along with the administration's plan to boost gasoline taxes (which go into the trust fund).

Another battle is in prospect over federal money for airports. The President vetoed a bill this year which would have increased annual federal aid from $63 million to $100 million and extended the program through fiscal 1963. Chances are that he will not veto such a bill a second time, because the need for airports to meet the jet age is becoming more evident.

• **Materials Supply** — Associated General Contractors reports no de-

Modern Homes.

Highways, Housing To Lead '59 Building Boom

(Millions of dollars)

	1957	1958	1959	Per Cent Change: 1958-1959
PRIVATE	34,138	34,400	35,000	+ 1.7
Residential	17,019	17,900	18,750	+ 4.7
Nonresidential	9,556	8,680	8,700	+ 0.2
Public utilities	5,774	6,020	5,800	− 3.7
Farm and other	1,789	1,800	1,750	− 2.8
PUBLIC	14,354	15,100	16,000	+ 6.0
Residential	506	785	625	−20.4
Nonresidential	4,486	4,550	4,675	+ 2.7
Military	1,322	1,200	1,300	+ 8.3
Highways	5,215	5,600	6,250	+11.6
Sewer & water	1,344	1,375	1,425	+ 3.6
Conservation	971	1,030	1,075	+ 4.4
Public service & other	510	560	650	+16.1
TOTAL NEW CONSTRUCTION	48,492	49,500	51,000	+ 3.0

Source: 1957, Labor & Commerce Departments. 1958-59, Labor Department.

livery problems in steel or cement, but are a little concerned about cement next year, if highways boom as expected.

• **Labor Problems** — Jurisdictional strikes this year were off 45 per cent from those of 1957, says the AGC, but it continues to hammer at the need to stop featherbedding.

Thus with no more than the usual labor problems, better than average material supplies, an ample supply of credit, and perhaps a below-normal increase in costs, the construction industry faces its best year in history. The breakdown:

• **Housing** — Most experts think starts will fall off to 1.1 million next year, compared with about 1.2 million this year. Mr. Chase disagrees: He forecasts an increase of about 75,000, but thinks the trend will drop off the latter part of 1959. Starts this year will carry dollar volume higher next year, even if they fall, points out Mr. Schneider.

• **Industrial**—Large projects (over $5 million) have fallen over 50 per cent from their 1956 peak. The trend should flatten out next year, because contract awards have already turned up. Small projects (under $5 million) have fallen rapidly from their 1957 peak, and appear stronger than large projects.

• **Commercial**—Not as many new office buildings are being started. A decline is expected next year. The National Association of Real Estate Boards predicts a "slight lull" in shopping center building until the 1960s.

• **Farm**—A drop in farm income next year, notes Mr. Chase, will affect farm construction.

• **Utilities**—Mr. Schneider is pessimistic about railroad construction, sees private gas utilities holding their own, and electrical utilities up a little.

• **Public Housing**—The Capehart program for military housing should keep rolling, barring a cutback in funds.

• **Public Nonresidential**—A school program would help tremendously. Despite the administration's objections, Sen. James Murray (D., Mont.), chairman of the Education Subcommittee, predicts an "adequate program of classroom construction will have high priority next session." Atomic Energy Commission building will increase substantially.

• **Military** — Dispersal of Strategic Air Command bases and permanent missile installations for ICBMs will boost spending in this category.

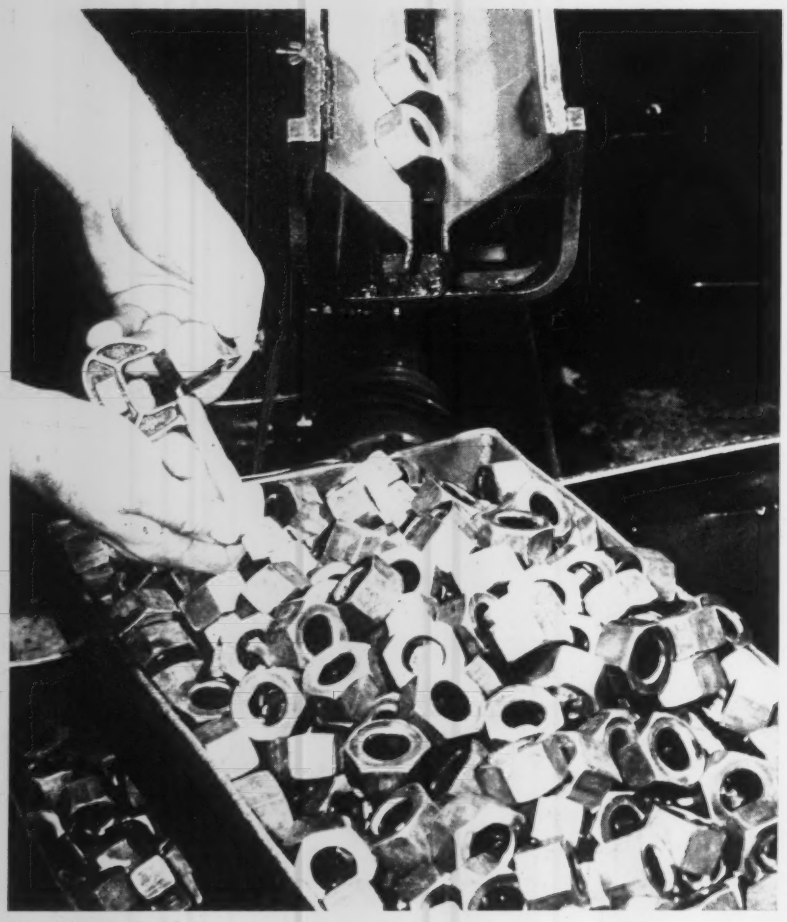
• **Highways** — Some fabricators take on more work than they can handle, notes a Bureau of Public Roads spokesman. In some instances, the program still is not moving as fast as it could. BPR says highway construction will rise to $7 billion next year and level off at about $8 billion by 1962 (including engineering and right of way costs). Steel consumption will hit 3.9 million tons by 1962, compared with about 3 million tons last year.

• **Sewer & Water** — Increased spending will be required each year through the early 1960s at least.

• **Public Service**—The New York Power Authority's program insures gains in this category.

• **Conservation** — Mr. Schneider predicts it will continue to gain "at a good clip."

• **Conclusion**—Optimists think total public spending might go as high as $16.6 billion. Pessimists regard private construction's chances of bettering 1958's output as slight. In balance, total construction can't fail to better this year's record, unless a steel strike cuts the economy back to recession levels.



Jones & Laughlin Steel Corp.

Fasteners Hang On

Even though the industry's operating rate this year is only about 70 per cent and competition is stiff, producers are sure they'll need more capacity by the mid-1960s

CONSTANT DEVELOPMENT of new uses for metal fasteners is keeping this industry in the growth column despite serious threats from other methods of joining and foreign producers.

The products of this industry (rated at $1 billion annually at the manufacturers' level) are still the most popular means of holding practically anything together. The biggest users are the automotive, aircraft, and appliance industries. About 2 per cent of all steel mill shipments go into fasteners.

• **Enough Capacity**—Industry officials figure that their operating rate so far this year is about 70 per cent, although it can't be tied down because of difficulty in computing total capacity.

The Bureau of the Census lists about 230 plants employing 20 or more, but officials of the Industrial Fasteners Institute say there are probably around 400 companies which make bolts, nuts, screws, rivets, or other metal mechanical fastening devices.

Most industry spokesmen readily admit that overexpansion is one of their problems today, but they feel that demand will catch up with capacity in most lines by the mid-1960s. Then you will see another round of expansion.

• **Give and Take** — Competition from other joining methods is keen, but, generally, fastener makers aren't getting ulcers. "We've lost some markets, but we've captured others," says James G. Rayburn, vice president of Lamson & Sessions Co., Cleveland. "There is room for all types and methods of fastening."

Some sections of the industry are faced with declining markets. Both high strength bolts and welding have cut into the heavy rivet markets, and use of prestressed concrete is threatening both heavy bolt and rivet makers. But the railroad industry is still one of the biggest rivet users, and shop fabrication of structural steel continues to consume large amounts of this product.

• **Adhesives Threaten**—While most manufacturers of mechanical fasteners claim that adhesive bonding is still largely unproved for most mass production uses, it threatens to capture sizable markets in the future—especially in the aircraft and electronics industries.

A *Machine Design* study (see following page) reveals that 39 per cent of the original equipment manufacturers who responded use some adhesives; 41 per cent are in transportation; 30 per cent in machinery; and a whopping 61 per cent in instruments.

Typical of the industry's attitude toward this newcomer is the comment of George Case Jr., president of Lamson & Sessions: "As long as products have to be taken apart for repair and maintenance, bolts, nuts, screws, or rivets will have to be used for joining. But God help us if they ever find an inexpensive, quick method of disassembling adhesive bonded parts."

• **Most Serious Threat** — To keep pace with the changes in this industry, many manufacturers have had to change, too, mostly by altering their product mix or by diversifying into allied fields. But their biggest problem—imports—is not as easy to

solve. The wood screw people are hardest hit.

"With wage rates in the U. S. factories from three to ten times higher than those in Europe and Asia, it is becoming impossible for domestic producers to compete in the domestic market," declares George P. Byrne Jr., managing director of the United States Cap Screw Service Bureau, New York. In June, imports of wood screws were 38.85 per cent of domestic shipments, which was well above the 25.14 per cent for all of 1957. And he claims that the wage differential is also ruining the industry's exports.

The industry is sending a constant barrage of protests to the White House, which Mr. Byrne contends "eventually should bring about a change of attitude in Congress and the White House regarding protection for our industry." But privately, company officials doubt that much will come of it. "In good times, we need imports," says one official. "It's only during recessions that imports or any other competition really hurt us."

Save with Fastener Engineering

AN APPLIANCE maker spent thousands of dollars designing, developing, and tooling up for a new model only to be stymied because he couldn't find the right kind of fastener for one multiple joining operation. He ended up paying a premium for a special bolt and nut designed for the job.

"If he had come to us in the first place, we could have shown him how he could have used a standard item by repositioning the fastener," said the supplier. "He would have saved time, money, and a lot of headaches."

• **Golden Opportunity**—"Fastener engineering offers one of the greatest areas in which management can cut costs today," declares an official of Tinnerman Products Inc., Cleveland. "Fabricators will design a million dollar product, then try to cut pennies on bolts and nuts. Result: Customer dissatisfaction when a cheap or improperly used fastener causes operating failure and a high repair bill."

Although many fastener makers offer design and engineering help, relatively few customers use it. In a study of the use of fastening devices and methods conducted by *Machine Design*, a Penton publication, 69 per cent of the respondents used some specialty items in their products. Yet only 7 per cent reported that they use the supplier's design service often, and 56 per cent state they use it only occasionally.

• **They Cost Less**—In designing a product, chances are good you can specify standard fasteners for most applications. In the *MD* study, 94 per cent of the respondents reported they use at least some off-the-shelf items, while 69 per cent said they use some specials. Of those using standards, about twice a many buy from distributors as those who buy directly from manufacturers.

To meet this strong demand for the bread-and-butter items, makers and distributors keep large stocks on hand for almost immediate delivery. Tinnerman Products alone has an inventory of over 500 million pieces of its Speed Nuts.

Other significant findings of the *Machine Design* study: Only ten respondents use nothing but custom made fasteners. Seventy-six say more than half of all their requirements are specials. Screws (such as cap, machine, set, tapping, and wood) are the most popular fasteners, being used by 75 per cent of the respondents. Nuts are used by 72 per cent, followed by washers (69 per cent) and bolts (55 per cent).

Record in Wire Rods

New production mark by AS&W mill shows demand is up for this bellwether steel product

THE UPSURGE in wire demand last month resulted in record production of the No. 1 rod mill at the Cuyahoga (Cleveland) Works of American Steel & Wire Div., U. S. Steel Corp.

Walter L. Longnecker, manager of operations, Cleveland district, AS&W, says October's output at that mill will approximate 39,000 tons. Production per turn averaged 492 tons in the first four weeks of the month. "This surpasses any monthly turn average for this type mill," company officials report. "Previously 400 tons was considered an excellent turn average."

• **Sales Trends Spark Record**—A heftier order book and improved backlogs helped mill operators set the mark. The number of turns per week is about 20 per cent above this year's low. The mill worked 18 turns per week in October, compared with 13 to 15 during 1958's slowest months.

A midwestern wire rod supplier told STEEL: "Fastener producers, automakers, and appliance manufacturers are taking 20 per cent more wire than they required in the early third quarter. Gains in demand for this product are a welcome indicator of future business trends. We sell directly to consumer products manufacturers. Growth in our sales curve shows that the average buyer wants more finished goods."

Wire suppliers admit that order backlogs are well below peak levels. A wide variety of moderate-size orders necessitates frequent changes of rolls, with consequent loss of production time. The No. 1 rod mill at the Cuyahoga Works made 70 size changes involving downtime in the first four weeks of October. The mill rolled 53 sizes of rods.

• **Wire Gains Will Hold**—Adding an encouraging note to the outlook for wire, Mr. Longnecker reports: "We will probably continue operations at 18 turns per week in November. We haven't reached our top production in the record-breaking mill yet."

NEA

Will Strauss Change Commerce's Ways?

A TAFT REPUBLICAN will run the Commerce Department for the last two years of President Eisenhower's administration. What changes Adm. Lewis Strauss, former Atomic Energy Commission chairman, may bring to the department are among the top gossip items in Washington this week. Officially scheduled to take over Nov. 10, one of the capital's most controversial figures will continue to make headlines.

The first encounter with Congress in January when the administration seeks confirmation of Admiral Strauss's recess appointment will provide more than the usual fireworks. Leading Democrats like Sen. Clinton Anderson of New Mexico will use their influence to embarrass him when he appears before Sen. Warren Magnuson's (D., Wash.) Interstate & Foreign Commerce Committee for examination. Traditionally, Congress does not turn down a President's cabinet appointments, but the Democrats won't miss a golden opportunity to strike a blow for the Presidential campaign of 1960.

Strauss's Record Will Be Criticized

Liberals still claim the admiral did a great injustice to J. Robert Oppenheimer when the physicist lost his security clearance for atomic energy secrets. (Incidentally, another player in that drama, Gordon Gray, is the President's personal adviser on defense matters.) The new Commerce secretary will also hear about his "pressure" to put through the Dixon-Yates power contract, his "opposition" to public development of atomic power, and his high regard for secrecy in AEC matters.

Observers wonder what the admiral will think about increased help through federal subsidies for the U. S. Merchant Marine, reversal of the pay-as-you-go policy of financing the federal highway program, closer economic relations with the communist world, and a host of other problems.

If Ike had planned to finish his term in a series of political explosions, he couldn't have picked a better man than the admiral to light the fuses. The appointment is in distinct contrast to the selection of comparatively mild mannered men like Defense Secretary McElroy (who replaced fire-eater Charlie Wilson) and Treasury Secretary Anderson (who replaced National Steel's Humphrey).

Bulletin F Revisions Due Soon

Although official Treasury sources report the work of the committee to revise Bulletin F (equipment depreciation rates) is still "awaiting review," word has leaked out that a decision will soon be made public. Asked if he thought Internal Revenue Service would grant "realistic" rates (no more than ten years), a source close to the subject claims: "We're not planning on giving up anything we've been fighting for."

IRS is reported ready to offer a package deal in return for the revised rates: Profits from the sale of machinery will be taxed at the 52 per cent rate instead of the 25 per cent capital gains rate. If the rates are no more than ten years, machine tool interests are reported to be satisfied with that package.

New Solid Fuel Program Is Started

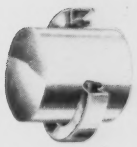
The Advanced Research Projects Agency is negotiating with American Cyanamid, Dow Chemical, Esso Research, and Minnesota Mining for contracts of $1 million to $2 million each, which will lead to an "integrated" solid fuel program. The contracts, says ARPA, are: "Unique in that the companies were not given detailed specifications, but rather, end objectives." Solid fuels, now in use or under development for Pershing, Polaris, Nike Zeus, Minuteman, and upper stage rockets for space flight, have thus been given the official go-ahead so long promised by the Pentagon. Work will continue on advanced liquid fuels, particularly for our ICBM programs, but succeeding generations of birds seem to guarantee the use of solid propellents.

The granting of contracts in terms of objectives rather than specifications gives all industry the green light for tie-in developments in skins, structurals, and electronic components, says one source.

Labor Reform Bill Coming in January

Labor Secretary James Mitchell says the administration will greet the new Congress in January with a bill designed to stop the secondary boycott and "blackmail picketing." The reform bill which failed in Congress this year did not provide relief from those practices, he notes. The administration's bill will also include provisions assuring union members of the right to choose officers without "coercion," guarantee of union funds against theft and misuse, and will stamp out collusion among employers and union representatives, he says.

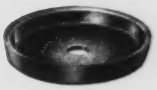
VALUE ANALYSIS where it really counts ... during design!



C/R Shaft Type Oil Seal

C/R Standard End Face Seal

C/R Sirvene Diaphragm



C/R Sirvis Molded Cup

C/R Rawhide Beveled Gear

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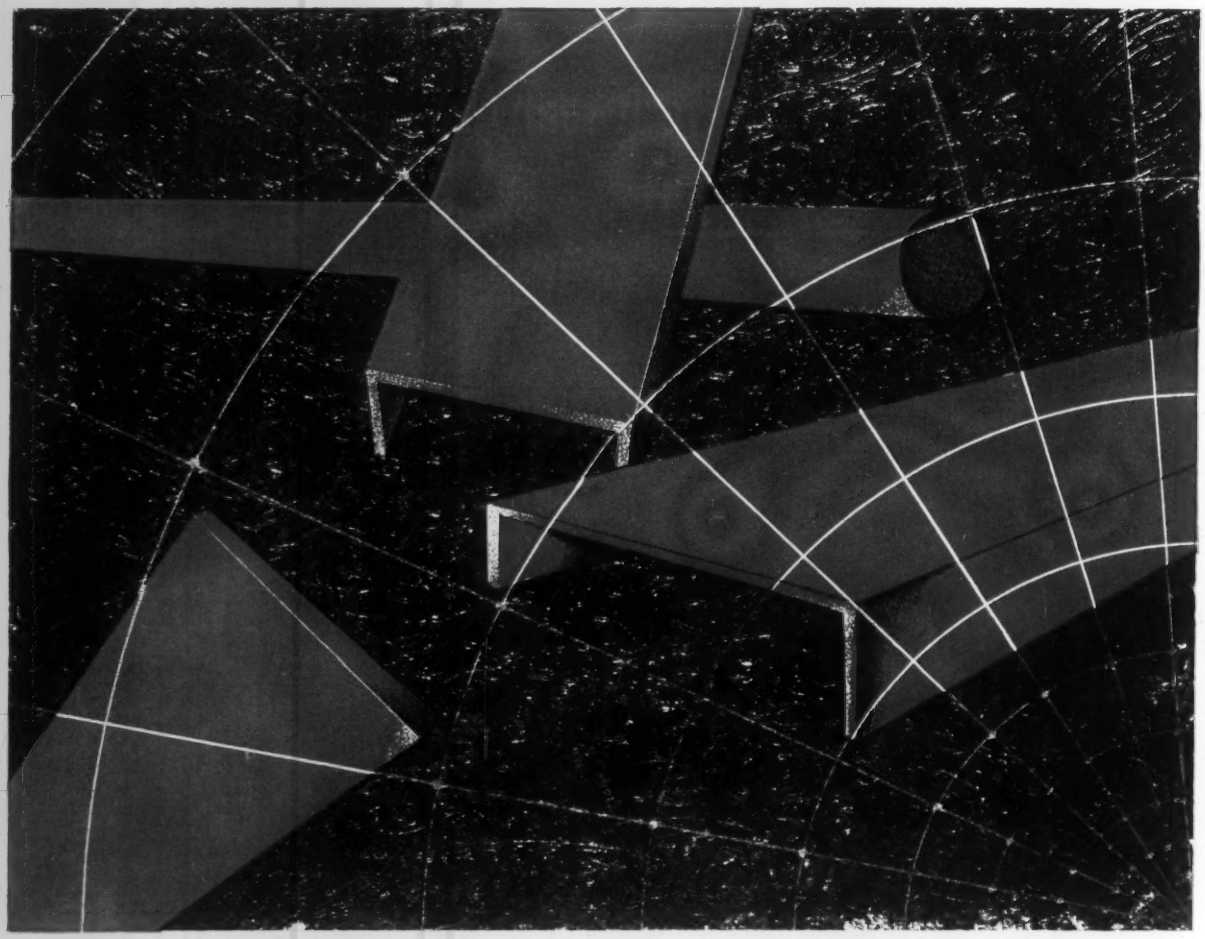

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To rewin old customers and get new ones, Inco researches . . .

Ways To Woo the Buyer

WHAT can you do to win back markets that have been taken over by other metals.

That was the puzzle facing International Nickel Co. in late 1957 when the nickel supply situation suddenly switched from scarcity to overabundance.

• **Problem**—Defense needs and the national stockpile had been taking large chunks of nickel for several years. Many users had switched to substitute materials.

As defense emphasis shifted and stockpile needs were filled, plenty of nickel became available to civilian consumers. But the time was not right. The recession was in its initial stages, and new nickel deposits were being opened up

Inco was forced to curtail production from 310 million lb a year (full capacity) to its present operating rate of 200 million lb. But stocks continued to rise: In July, inventories in the hands of Inco and the U. S. Government amounted to 135 million lb. An additional 25 million lb (estimated) were in customers' inventories.

Another problem is in the making. Inco will increase its capacity 75 million lb within three years. Other producers also plan expansions.

How do you sell more nickel under those conditions?

• **Solution**—Inco decided on a two-pronged approach: Encourage industry to use more nickel-bearing alloys, and seek the re-establishment of specifications that had been changed when nickel was short.

Inco's battle plan: Pinpoint the markets you want to shoot for. Use a rifle instead of a scattergun in promotional and sales campaigns. At Inco, it meant: 1. Reduce the number of items on which sales emphasis is placed. 2. Make distribution outlets partners.

Inco decided to concentrate on selling alloy constructional steels containing nickel through steel service centers. The campaign's primary objective: To increase the consumption of alloy constructional steels by convincing users to upgrade—switch from the carbon steels.

Instead of trying to push a line of products, Inco's plan is to convince metal users they can simplify their inventory and plant processing problems (and save) by standardizing on Type 4340 and 4620 steels for most industrial applications which require alloy properties.

• **Why These Two?**—Type 4340, a general purpose alloy steel, offers maximum strength, toughness, and reliability in moderate to heavy section parts, says Inco. It believes that Type 4620 will serve in 90 per cent of all applications calling for a general purpose carburizing steel.

To start the ball rolling, early in the summer Inco's technical field sections met with the management and sales staffs of steel service centers throughout the country to outline the campaign and enlist their support. Initial results: Over 150 steel service centers are co-operating in the Inco promotion by stocking and marketing the two alloy steels.

• **Plan of Attack**—Inco is using every promotional tool at its disposal to put across the "Two Alloy Steels" plan. It fired its opening gun in September: An industrial advertising campaign in 19 leading business and technical publications.

The company is also pushing the plan in its national magazine, newspaper, and radio advertising. It provides steel service centers with direct mail folders and newspaper mats for local advertising. A booklet (it lists established applications of the two alloy steels in leading industrial fields and gives technical data on their properties) has been distributed to service center sales personnel. And potential customers are supplied with a buyer's guide which names the service centers at which the alloys can be obtained.

Inco is also pushing the plan at trade shows and conventions. Finally, specialists in the company's sales staff work close with service center salesmen to keep customers informed on the advantages of the alloys.

• **Wrapup**—Inco believes it has found the formula for selling more nickel: 1. Convince the user that he can save money and improve his product with the high alloy steels. 2. Help the steel warehouseman increase his sales by providing him with supporting advertising, technical help, and sales leads.

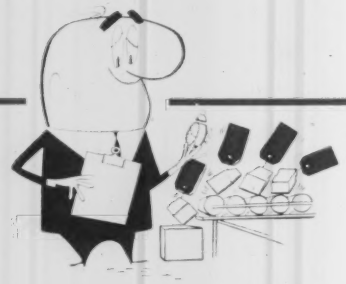
August Strike Total Low

About 300 strikes began in August, the lowest total for that month in ten years. Stoppages which continued from July pushed total strike idleness to 2 million mandays, an increase over August, 1957, but lower than any other postwar August.

The 475 strikes in effect during the month involved about 250,000 workers.

Plant Superintendents Are . . .

- Responsible for production
- Adept at handling
- Willing to delegate authority
- Skilled in decision making
- Effective communicators
- Well-educated
- Active in civic affairs
- Ambitious
- Familiar with plant operations
- Well-paid



They Carry the Weight of Production

Who are metalworking's executives? The plant superintendent is a key member of the team. He's the man who gets the work out—through delegation, supervision, leadership

"MY JOB is the development of people," says George Meyer, general superintendent, Warner & Swasey Co., Cleveland. "People are the source of production which is my responsibility. With my time devoted to people, production problems have become quite secondary."

Howard Nieberding, superintendent, American Stamping Co., Cleveland, says his work is like that of a general manager. He is involved in tooling, engineering, development work, personnel problems, and setting up new plant programs.

Byrl M. Stout, works manager at the Port Allegany (Pa.) plant of Pittsburgh Corning Corp. describes his job as "operation of a plant, including such things as labor relations, production scheduling, quality control, maintaining inventories." He boils it down to "seeing to it that the plant is adequately staffed, manned, equipped, and has sufficient raw materials and utilities."

William E. Bruse, works manager, Shakeproof Div., Illinois Tool Works, Elgin, Ill., says he is in charge of production, production control, inventory scheduling and shipping, inspection and quality control, metallurgical department, industrial engineering department, manufacturing engineering department, and the toolrooms.

• **The Job**—Some companies have plant superintendents; some have plant managers; some have both. Often the titles are interchangeable; sometimes not. But in all cases, some likenesses can be found.

Mr. Meyer says he is not concerned with day to day activities. He delegates those responsibilities and expects his subordinates to carry them out. Mr. Nieberding believes that thorough knowledge of plant operations is one of the attributes of a good superintendent.

Mr. Meyer thinks that all superintendents or managers must have three things in common. He calls them dedication, delegation, and decision. Superintendents must be dedicated to their jobs. They must consider their work important. They must be able to delegate authority, then give the subordinate enough freedom to get the job done. They must be able to make decisions.

No matter what company the superintendent works for, he will be held responsible by his superiors for getting the work out. As Mr. Bruse puts it: It's the plant superintendent's job "to get the right people to work on their jobs with the right motives. When that is accomplished, they get the job done."

The superintendent must be able

to delegate work. He must be able to leave it delegated. But he must be ready to take the responsibility when things go wrong.

• **The Man**—Plant superintendents handle many different types of work, and, as might be expected, the type of man differs widely.

Most are not college graduates, but most are well-educated. Many, of course, are college trained and the number is growing. Educational backgrounds vary widely. Example: George Meyer has a degree in geology from California Institute of Technology.

Many superintendents are technically trained. Typical is Hotpoint Co.'s Harold Black, a graduate of night technical school and apprentice machinist courses.

What is important (and common) among plant superintendents is their desire for self-improvement. They're curious. They like to read, although most complain they don't have enough time. They get interested in civic affairs and generally encourage their men to do the same. Many are taking night school courses not directly related to their jobs.

• **The Opportunity**—Plant superintendents are managers. They're consulted on many different types of problems. They're important members of the staff.

And they're being readied for promotion. In some plants, the next step is plant manager. In some cases, men can move directly into administrative jobs.

Some men use the job to move up in the company. Some get better offers elsewhere. But it's no place for a man to rest.

It's a good job. Some men retire in it. But for those with the right background and the desire to move ahead, it's a springboard into top management.

• **On Payday**—The average plant superintendent is paid about $15,000 annually. Most get a yearly bonus when production results warrant it.

Plant superintendents are the shock troops. They're responsible for getting the work out. They're indispensable.

• An extra copy of this article is available until supply is exhausted. Write Editorial Service, STEEL, Penton Bldg., Cleveland 13, Ohio.

Portrait of a Superintendent

Robert J. Dubuc is plant superintendent for the Gear Grinding Machine Co., Detroit. He is 37.

Although it's difficult to type-cast the plant superintendent, Mr. Dubuc is a representative member of his profession. He is a graduate of the University of Detroit (mechanical engineering). His background includes two years with the U. S. Navy as a lieutenant (navigation officer).

Mr. Dubuc started his working life in a Ford Motor Co. trade school (while he was still in high school). After graduation, he worked with Bendix Aviation in Detroit and rose through the ranks to foreman of the toolroom, machine shop, and welding section. He was promoted to general foreman of one of Bendix's three plants and finally to factory manager of all three. He was with Bendix for 16 years.

In 1955, he joined Gear Grinding Machine Co., where he has control of all productive and nonproductive labor and departments such as labor relations, material handling, and control. He's chairman of the plant operating committee which plans all gear grinding schedules. The company has 350 to 400 employees.

Mr. Dubuc says a superintendent in a smaller plant (about 125 to 150 employees) should earn about $12,000 to $15,000 per year. In a larger plant, he should earn $20,000 to $25,000. He adds that any salary plan should include a bonus.

Mr. Dubuc has a big voice in labor problems. Although he may have occasion to feel that plant superintendents need more authority, he has a good job and knows it. He looks upon it in the same light in which he considered earlier positions—as a step toward a better position.

He has already picked the man to succeed him if he is promoted or becomes unable to work. The choice was reached by him after consultation with top management. His heir apparent has been notified.

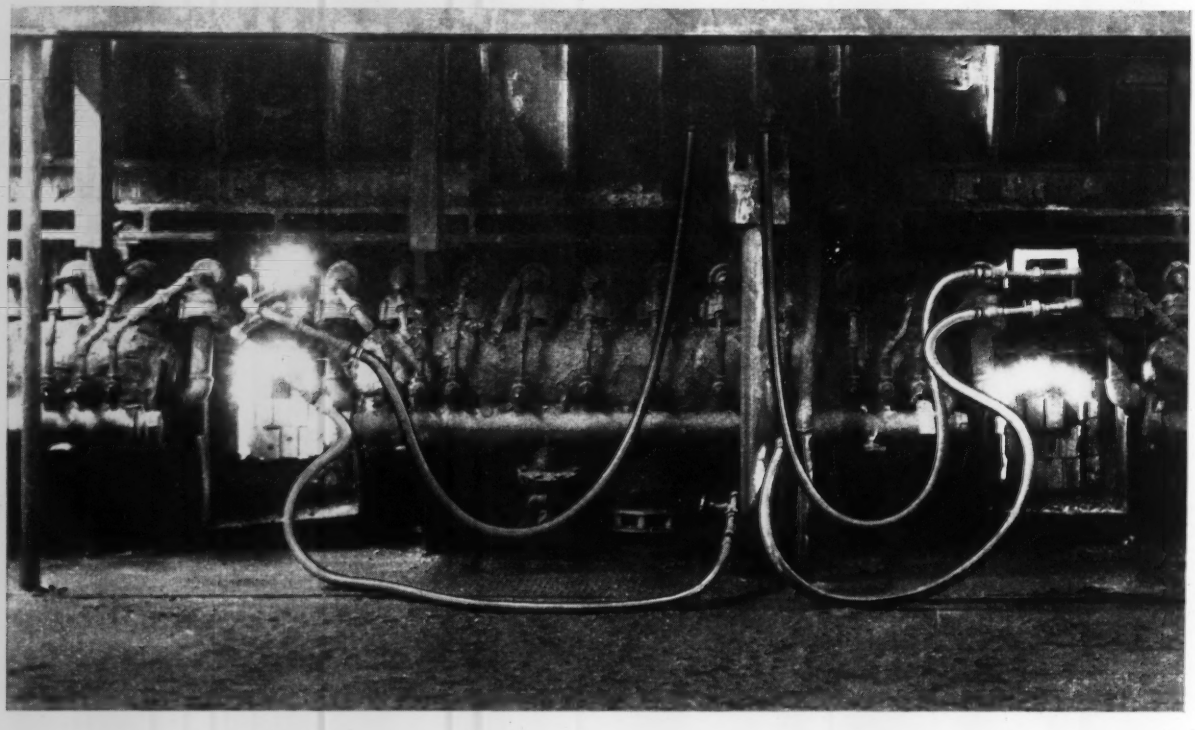
He considers his job a stepping stone, but he doesn't expect things to come easily or unearned. He works 45 to 50 hours a week, splits his three-week vacation into two parts.

He wants to take more courses related to his job—so far, he has studied business administration, patent law, and top management cost control.

Mr. Dubuc considers his type of work to be "particularly fine training" for a man who would like to be vice president-engineering or plant vice president.

PEERLESS WATER HOSE

BIG STEEL MILL DEPENDS on U.S. PEERLESS WATER HOSE to prevent pipe skid burn



In the Fretz-Moon furnace of this Kaiser Steel Mill in Fontana, Calif., one length of U.S. Peerless® Water Hose ("the hose with the good brown cover™") carries cold water to the pipe skids, another length carries the return hot water—up to 200° F. If the hose should fail or kink, the pipe skids would burn up and costly repairs and downtime would follow.

Kaiser Steel depends on Peerless to safeguard valuable skids and keep its pipe mill in operation. U.S. Peerless is part of the complete line of U.S. Rubber's industrial hose, engineered for use and abuse.

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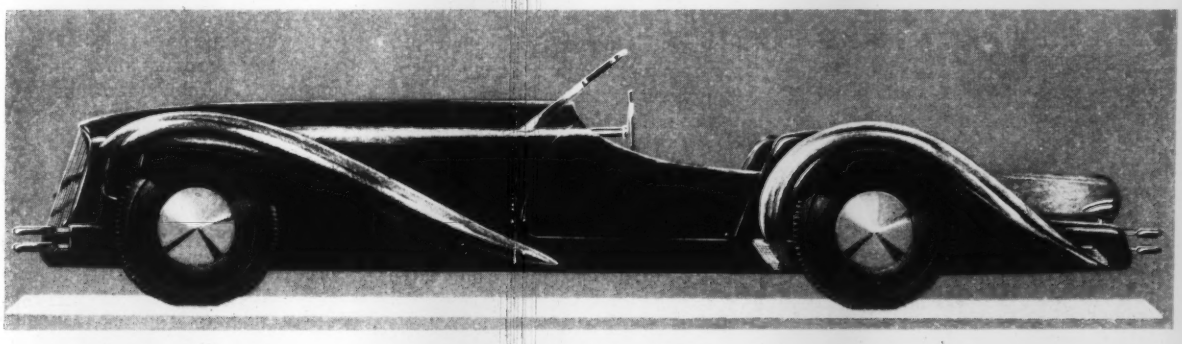
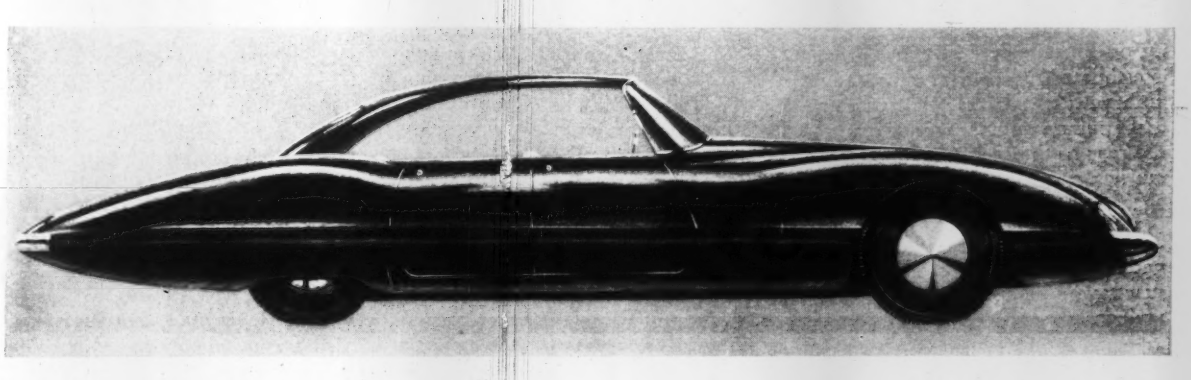


This roadster is Argonaut's Texan



Here's Argonaut's five-passenger sedan

Argonaut Makes Its Debut

Built to last, luxury car has aluminum body and stainless steel exhaust system. Chassis is assembled in Cleveland, shipped to Italy for bodywork

FIRST they said it couldn't be built. Now they're saying it can't be sold.

With little of the hoopla attending most auto introductions, the Argonaut made its long-awaited debut in Cleveland on Oct. 22. Newsmen, photographers, sports car buffs, and prospective buyers trooped through Hotel Cleveland's lobby where they saw a gleaming white chassis, resplendent with brass radiators (for water and oil), red carburetors, aluminum spark-plug covers, and stainless steel mufflers. Body styles (see sketches above) were displayed on easels.

• **Will It Sell?**—Admitted by invitation only, spectators sipped cocktails, chatted quietly with officials of Argonaut Motor Car Corp., and helped themselves to the hors d'oeuvres. They liked what they saw, but would they buy it?

Richard S. Luntz, Argonaut's president and chairman, thinks there's a market for an automobile of superior quality. During the last two years, he and his associates (15 stockholders) have developed a car of the Duesenberg class. It's available in two wheelbases (126.5 and 154 in.) and seven body styles: Formal coupe, sedan, closed coupe, convertible, classic roadster (The Texan), aerodynamic speedster (Argonaut Smoke), and eight-passenger limousine. Over-all length varies from 218 to 258 in. Height is about 52 in. and track, 66 in. Price range: $17,000 to more than $20,000.

Assembled at a leased plant in Cleveland, the chassis has a frame of 5-in. seamless steel tubing, with 3/16-in. walls and 1/4-in. attachments (made by Overbeke-Kain Co., Cleveland). Chrysler Corp.'s Marine & Industrial Engine Div. makes the powerplant, an overhead valve V-8 with displacement of more than 400 cu in. Two transmissions are offered—manual with overdrive or three-speed automatic (Chrysler).

• **Engineering** — Boasting 50-50

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weight distribution, the Argonaut doesn't have power steering. The suspension system consists of torsion bars in front and low frequency semielliptic springs at the rear. Shock absorbers are individually adjustable from the instrument panel. Brakes have large capacity drums with sintered iron linings and flanges for air cooling. Twin stage master cylinders "give the effect of power brakes but afford more constant feel and increased safety," Argonaut claims.

Racing tires (8.20-15) are standard equipment and carry 35 lb minimum pressure. The stainless steel gas tank is honeycombed to prevent fuel surge and has a capacity of 32 gallons; fuel consumption is estimated at 16 to 17 mpg (at 50 mph with overdrive). Two electric fuel pumps are mounted toward the rear of the chassis. Exhaust and muffler system is of stainless steel.

Although it buys major parts from independent suppliers, Argonaut makes its own oil radiator, suspension components, and brake and gearshift mechanisms.

• **Take It or Leave It** — Asked whether a buyer might specify the mechanical components to be used in his car (make of transmission, for example), Mr. Luntz replied: "No, we don't believe the customer is likely to know the engine requirements as well as we do."

• **Aluminum Bodies**—Like custom chassis builders of the 1930s, Argonaut ships its product to Europe for bodywork. All bodies are aluminum, hand formed by two Italian coachmakers: Touring of Milan and Bertone of Turin. Since Argonauts are built to order, the buyer must choose a body style from the catalog. He won't be able to inspect it until it arrives, bolted to a chassis. The Argonaut's curb weight will be 4000 to 5600 lb, depending on body style.

Argonaut has appointed three distributors—in New York, Dallas, and Los Angeles. They'll sell the car in the U. S. through selected foreign car dealers.

• **Sales Objectives** — During its first year, Argonaut hopes to deliver about 300 cars. "We haven't accepted orders until now," says Mr. Luntz, "but we have about 75 prospects. Eventually, we hope to make 600 to 900 cars a year." Currently, the company employs 23 production workers.

Prospective buyers should be prepared to write a check for at least $8500 when ordering, since Argonaut requires a down payment of 50 per cent. Delivery time: Seven to nine months.

Backs Aluminum Claims

Ford Motor Co. and Reynolds Metals Co. showed how their molten metal contract was working last week, and the talk naturally turned to the future use of aluminum in autos. Predicted C. H. Patterson, Ford vice president, Power Train Group: "Within five years the average car will contain from 100 to 120 lb of aluminum. I think I am taking a conservative approach."

Mr. Patterson points out that the average '57 Ford used 35 lb of the light metal. The figure jumped to 52 lb in 1958. The 1959 Fairlane 500 contains 68 lb.

• **Warning**—This is the second time within a month that a major auto company has pointed out that automakers plan to increase their usage of aluminum greatly. Dr. Robert F. Thomson and Darl F. Caris, General Motors research engineers, earlier told members of the Gray Iron Founders' Society that industry must: 1. Find ways to improve gray iron castings. 2. Develop diversified product lines. 3. Or prepare to include aluminum casting facilities in their foundries.

The reason for aluminum's rapid rise is explained by David P. Reynolds, executive vice president of Reynolds: "We are designing for aluminum rather than using the primitive approach of direct substitution for common materials with traditional methods."

That's basically what makes the final cost of finished aluminum parts as cheap as similar parts made from less expensive, but heavier metals that require more machining or handling. In addition, the molten metal contract between Ford and Reynolds has set a pattern for aluminum buying that automakers will find difficult to resist. Chevrolet has a similar contract with Reynolds at the GM division's Massena, N. Y., plant. Deliveries will start in a few months.

• **How It Works**—Ford's 220,000 sq ft casting plant at Sheffield, Ala., has been in operation since midyear. Its 83 die and permanent mold casting machines are turning out 67 auto parts. Biggest: A 24-lb transmission housing used on Ford's two-stage automatic transmission.

The aluminum comes in hot metal buggies from Reynolds' Listerhill, Ala., reduction plants. Ten truckloads, each consisting of two 5000 lb ladles of molten metal are delivered to the Ford plant every 24 hours, seven days a week. The contract calls for delivery of 640 million lb of aluminum over a ten-year period, a maximum of 150 million lb annually.

• **Expansion** — Reynolds has just completed a second reduction plant in the Muscle Shoals area to handle Ford's growing requirements. It cost $70 million. Capacity of both plants totals 190,000 tons a year. Much of the aluminum is used in Reynolds' Listerhill alloys plant where a $65 million expansion will give the company a yearly finishing capacity of 300,000 tons by 1960. Equipment installations will include a 70 in. wide breakdown mill and a hot mill that Reynolds claims will be the world's largest.

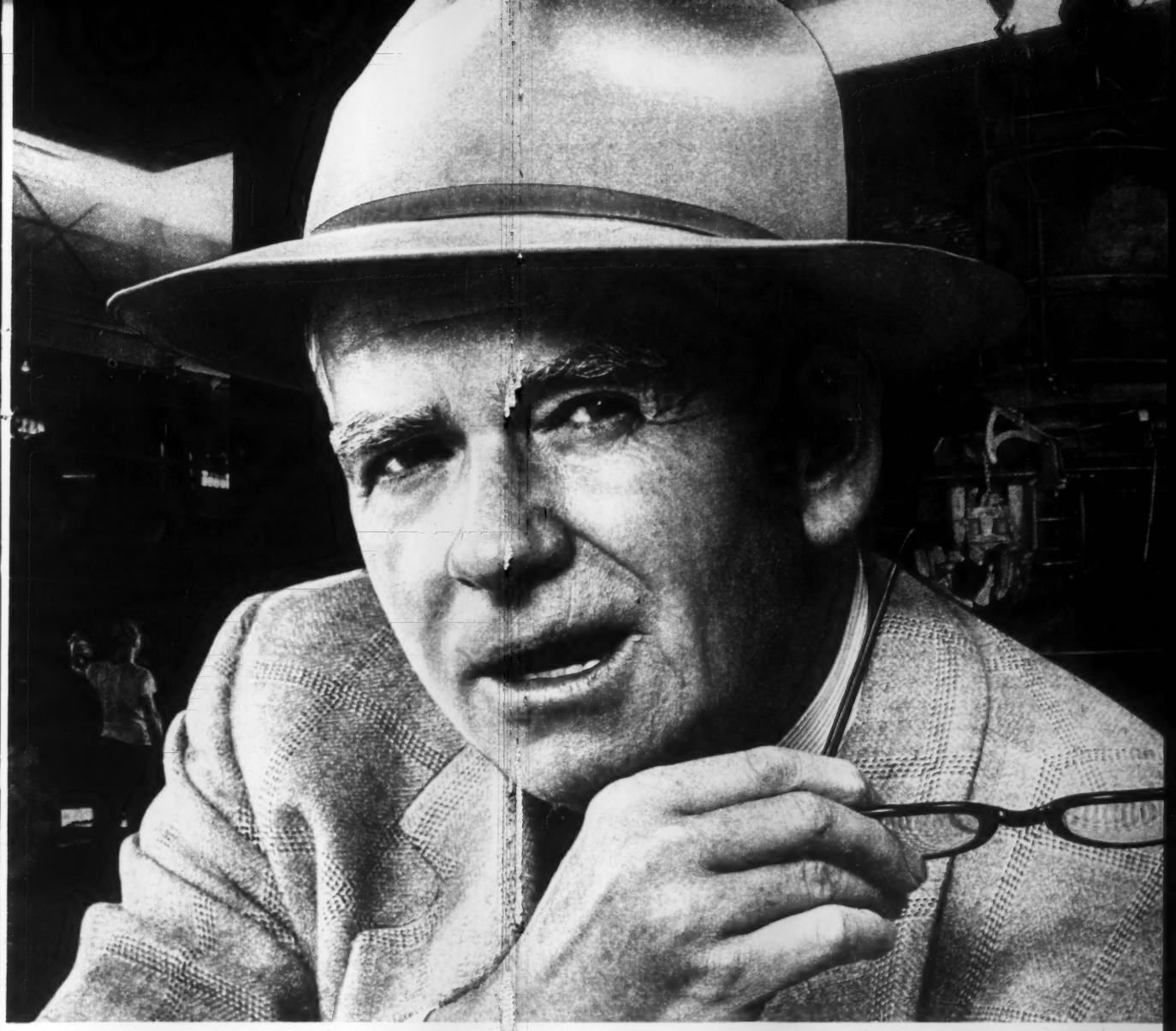
U. S. Auto Output

Passenger Only

	1958	1957
January	489,357	642,090
February	392,112	571,098
March	357,049	578,826
April	316,503	549,239
May	349,474	531,365
June	337,355	500,271
July	321,053	495,628
August	180,324	524,354
September	131,924	283,852
9 Mo. Total	2,875,151	4,676,723
October		327,362
November		578,601
December		534,714
Total		6,117,400

Week Ended	1958	1957
Sept. 27	42,599	51,552
Oct. 4	34,464	21,975
Oct. 11	34,834	38,526
Oct. 18	45,387	72,180
Oct. 25	70,724†	104,987
Nov. 1	100,000*	126,139

Source: *Ward's Automotive Reports.*
†Preliminary. *Estimated by STEEL.



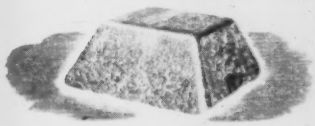
"I stock only one high-carbon chrome—refined charge chrome"

Steel mill and foundry operators are cutting chromium costs by using ELECTROMET's new refined charge chrome for all high-carbon chromium additions. Inventory, handling, and storage are greatly simplified by stocking only this one high-carbon chromium alloy. It is ideal for use as:

- **A base charge for stainless steels.**
- **Final additions for aircraft, bearing, and tool steels.**
- **Cupola or ladle additions for cast iron.**

Refined charge chrome combines the economy of regular charge chrome with the maximum cleanliness and low residual element content of conventional high-carbon ferrochrome. For facts on how refined charge chrome can reduce your costs, contact your ELECTROMET representative.

ELECTRO METALLURGICAL COMPANY, Division of Union Carbide Corporation, 30 East 42nd Street, New York 17, N. Y.



Convenient 20- and 40- pound pigs of refined charge chrome are magnetic, allowing easy handling with an electromagnet.

Electromet
FERRO-ALLOYS AND METALS

UNION CARBIDE

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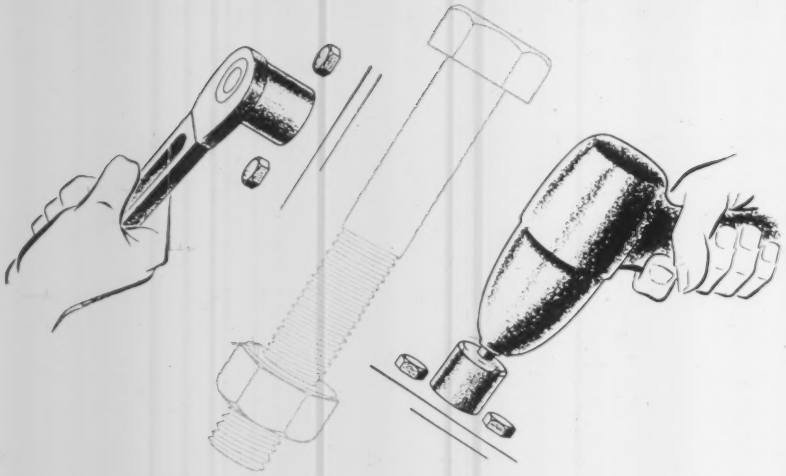
ECONOMIC FACTS ON FASTENERS



TIGHTEN UP FASTENERS TO TIGHTEN DOWN ON COSTS

- **Too little tightening wastes fasteners' strength—invites failures**
- **Proper application saves on material and production costs**

Go the limit in tightening bolts. You'll find this not only more economical, but safer too. For the strength of a rigid connection depends not on how strong a bolt is, but rather on how much *clamping force* it exerts when tightened.

Example: A bolt good for 20,000 pound load is tightened to just 5,000 pounds tension. Believe it or not, *joint* strength from that bolt would be only 5,000 pounds.

Case History: Earthmover's bucket kept coming loose. Bolts were upgraded progressively, finally to alloy steel and to 1¼-inch size . . . to no avail. Trouble was they still were not being adequately tightened. Bigger wrench, more torque and standard ¾" RB&W high tensile bolts stopped problem, saved money.

Obviously, the more of the fastener's strength you use, the smaller it can be. That's why RB&W High Tensile Bolts are such good buys. They have more strength to give. They cost less than the larger machine bolts or bright cap screws they can replace. Moreover, smaller bolts mean smaller holes to drill or tap. Smaller holes can often mean reduction in size of fastened members.

For a penetrating, productive value analysis of your fastening operations, make use of an RB&W Fastener Man. You may be surprised at the cost cutting his experience makes possible. Russell, Burdsall & Ward Bolt and Nut Company.

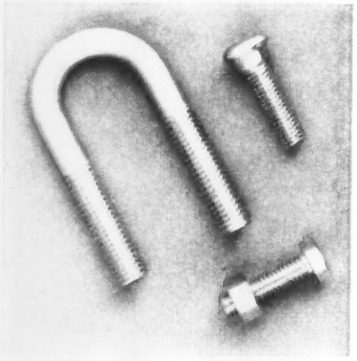
R B&W
114th year

Plants at: Port Chester, N. Y.; Coraopolis, Pa.; Rock Falls, Ill.; Los Angeles, Calif. **Additional sales offices at:** Ardmore (Phila.), Pa.; Pittsburgh; Detroit; Chicago; Dallas; San Francisco. **Sales agents at:** Milwaukee; New Orleans; Denver; Fargo. **Distributors from coast to coast.**

Economical lock nut

Staking opposite sides of these RB&W acorn nuts deforms threads for a positive grip. It also puts middle of nuts slightly out-of-round, for a spring tension locking effect. They're designed for applications such as outdoor furniture, where anchoring fasteners is more important than solid seating. Available in aluminum, steel, silicon bronze.

These all-metal nuts can also be furnished in double chamfered style. Since they lock with their middle threads, they can be turned onto screw from either side.

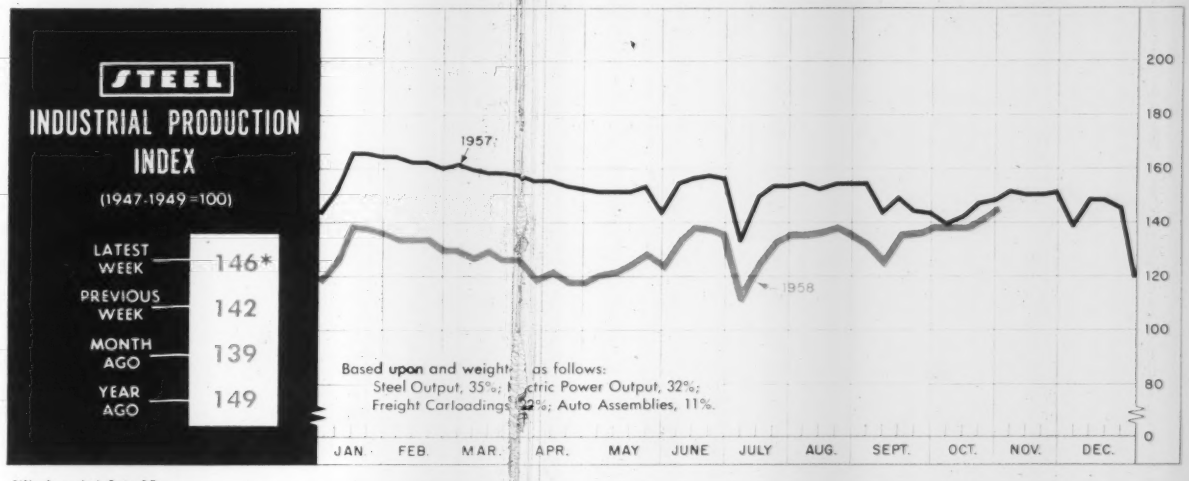


Silicon bronze fasteners combine desirable features

Silicon bronze offers the highest conductivity in fasteners able to withstand high stresses. It resists corrosion, stays free from season cracking, too. It makes ideal fasteners for electrical use where tensile strength is important; or for corrosive environments.

One of the first to develop such fasteners, RB&W cold works them for tensile strength and for clean, well formed threads that don't seize. Oval bolts, hex bolts and nuts, and U bolts available. Specials can be developed.

RB&W FASTENERS—STRONG POINT OF ANY ASSEMBLY



*Week ended Oct. 25.

Broad Base Spurs Business Recovery

THE SHARPEST RECOVERY in the postwar era has been a team effort. While certain segments of the economy—steel, appliances, construction, consumer income and spending—have been outstanding, reports just in from about a dozen durable goods industries indicate that the base has been broader than most people realize. Gains have not been large in some cases, and in others it has been a matter of staying even after months of decline. But the net effect has been a recouping of two-thirds of the ground lost during the recession. (See graph above.)

• **Industrial Furnaces — Up** — Net orders in September rose 37 per cent from the August level to $4,846,000, reports the Industrial Heating Equipment Association Inc. It was the second highest level of the year and well above the September, 1957, level. Orders for induction heating equipment were the highest this year, rising 233 per cent above the August level. But industrial and induction equipment are still considerably behind the cumulative year-ago totals.

• **Compressor Bodies — Up** — July shipments were less than 3 per cent below the year-ago figure, leaving the gap between current and year-ago monthly figures the narrowest so far in 1958. During the first four months of this year, the deficit averaged 25 per cent, says the Air-Conditioning & Refrigeration Institute.

• **Structural Steel — Up** — Both bookings and shipments of fabricated structural steel gained in September, says the American Institute of Steel Construction Inc. Bookings were 13 per cent above the August level—16 per cent ahead of the corresponding figure for 1957. While shipments were 5 per cent better than the August total, they were 25,000 tons short of the year-ago figure.

• **Used Machine Tools—Up**—Sales of used machine tools in September

BAROMETERS OF BUSINESS

	LATEST PERIOD*	PRIOR WEEK	YEAR AGO
INDUSTRY			
Steel Ingot Production (1000 net tons)[2]	2,009[1]	2,026	2,041
Electric Power Distributed (million kw-hr)	12,150[1]	12,048	11,787
Bituminous Coal Output (1000 tons)	8,535[1]	8,525	9,862
Crude Oil Production (daily avg—1000 bbl)	6,850[1]	6,893	8,766
Construction Volume (*ENR*—millions)	$251.4	$248.1	$359.6
Auto, Truck Output, U. S., Canada (*Ward's*)	90,171[1]	63,241	132,624
TRADE			
Freight Carloadings (1000 cars)	685[1]	696	704
Business Failures (Dun & Bradstreet)	288	271	258
Currency in Circulation (millions)[3]	$31,435	$31,498	$31,129
Dept. Store Sales (changes from year ago)[3]	+6%	+4%	0%
FINANCE			
Bank Clearings (Dun & Bradstreet, millions)	$24,393	$19,971	$22,409
Federal Gross Debt (billions)	$280.5	$280.4	$274.4
Bond Volume, NYSE (millions)	$26.1	$33.0	$34.0
Stocks Sales, NYSE (thousands of shares)	19,464	24,403	20,804
Loans and Investments (billions)[4]	$94.6	$94.1	$87.3
U. S. Govt. Obligations Held (billions)[4]	$32.1	$32.0	$25.3
PRICES			
STEEL's Finished Steel Price Index[5]	246.65	246.65	239.15
STEEL's Nonferrous Metal Price Index[6]	215.2	210.4	207.1
All Commodities[7]	118.6	118.8	117.7
Commodities Other than Farm & Foods[7]	126.0	126.1	125.6

*Dates on request. [1]Preliminary. [2]Weekly capacities, net tons: 1958, 2,699,173; 1957, 2,559,490. [3]Federal Reserve Board. [4]Member banks, Federal Reserve System. [5]1935-39=100. [6]1936-39=100. [7]Bureau of Labor Statistics Index, 1947-49=100.

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now we're getting some place!

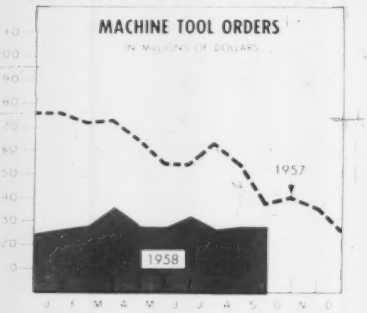
We're making solid gains in the fight against cancer, in the research laboratory, in the hospital and in the home. Ten years ago medical knowledge was able to save only 1 in 4 lives — today it's saving 1 in 3.

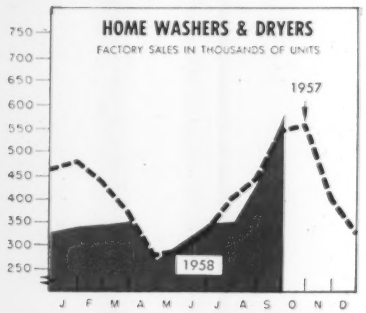
New surgical techniques, diagnostic methods, and an informed public are important reasons for these gains.

More and more people have learned that many cancers are curable if detected in time. And, sensibly, more and more people have formed the life-saving habit of an annual health checkup. They know it's living insurance against cancer!

AMERICAN CANCER SOCIETY

THE BUSINESS TREND





	New Orders		Shipments	
	1958	1957	1958	1957
Jan.	26,850	75,500	57,800	99,900
Feb.	28,300	71,900	48,050	103,350
Mar.	36,150	72,750	54,150	115,600
Apr.	28,300	64,300	50,900	110,650
May	28,050	53,650	50,100	104,300
June	32,100	52,800	45,500	106,950
July	26,550	62,650	29,700	81,450
Aug.	28,300	52,900	29,800	78,300
Sept.	28,000*	36,750	35,100*	82,050
Oct.	.....	39,700	.....	76,050
Nov.	.....	35,150	.....	59,750
Dec.	.....	24,850	.....	70,100
Totals	.....	642,900	.....	1,088,450

†Metal cutting and metal forming.
*Preliminary.
National Machine Tool Builders' Assn.
Charts copyright, 1958, STEEL.

	Washers		Dryers	
	1958	1957	1958	1957
Jan.	238,153	331,314	98,630	144,621
Feb.	263,099	319,580	78,578	114,517
Mar.	278,891	286,205	70,309	83,668
Apr.	224,896	230,675	38,475	42,850
May	262,999	254,195	41,898	31,572
June	288,831	282,289	54,173	46,783
July	277,287	310,915	75,513	70,440
Aug.	326,785	334,348	109,833	117,055
Sept.	423,073	392,733	158,733	166,473
Oct.	.....	369,487	.....	185,772
Nov.	.....	260,460	.....	141,663
Dec.	.....	206,787	.....	118,116
Totals	.....	3,608,988	.....	1,263,530

American Home Laundry Mfrs. Assn.

surged 21.7 per cent over the August total to nearly match the July rise which signaled the end of the recession for this industry. Incomplete reports on October sales indicate that the trend continued, says R. K. Vinson, executive director, Machinery Dealers National Association.

• **New Tools—Even**—Net new orders for cutting and forming tools in September remained at the $28 million level, while shipments advanced to $35.1 million, vs. August's $29.8 million, reports the National Machine Tool Builders' Association. (See graph and table, above.) This is about average for orders this year but considerably below the average for shipments due to a higher level at the beginning of the year.

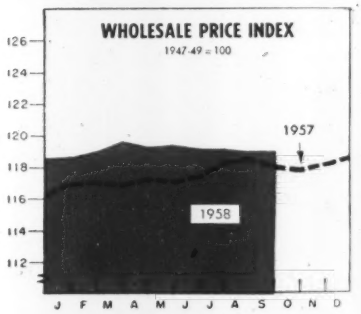
• **Furniture — Even**—While shipments and orders for furniture have leveled off at about 11 per cent under the year-ago figures, the workweek in the industry moved up to 40 hours in September for the first time since November, 1957. The National Association of Furniture Manufacturers Inc. says the kitchen and metal furniture groups led the industry with workweeks of 43.7 hours.

• **Freight Cars—Down**—Although September awards for freight cars declined to 1582 units, vs. August's 1773 units, it was the second best month of the year. Shipments continue to outrun orders, though, reducing the backlog to 24,982 cars, says the American Railway Car Institute.

Appliance Plants Busy

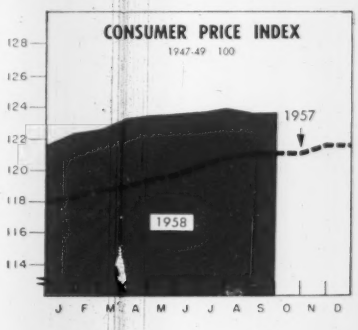
The appliance people also racked up some pretty impressive gains during September. The Gas Appliance Manufacturers Association Inc.'s tabulation shows that every product category showed month-to-month gains, and most showed an increase over the year-ago period. Cumulative shipments for gas fired central heating equipment through nine months of 1958 were 9.5 per cent ahead of the corresponding 1957 period. Ranges are still 9.8 per cent behind, but they rose to the year's high of 186,900 units. Water heaters advanced to 230,600 units to raise the cumulative edge over 1957 to 2.7 per cent.

Electric appliance production has also been strong. Industry sales of refrigerators reached 294,800 in September. It was the second best performance of the year and almost



	All Commodities 1958	All Commodities 1957	Other Than Farm & Foods 1958	Other Than Farm & Foods 1957
Jan.	118.9	116.9	126.2	125.2
Feb.	119.0	117.0	125.7	125.5
Mar.	119.7	116.9	125.7	125.4
Apr.	119.3	117.2	125.5	125.4
May	119.5	117.1	125.3	125.2
June	119.2	117.4	125.3	125.2
July	119.2	118.2	125.6	125.7
Aug.	119.1	118.4	126.1	126.0
Sept.	119.1	118.0	....	126.0
Oct.	....	117.8	....	125.7
Nov.	....	118.1	....	125.9
Dec.	....	118.5	....	126.1

U. S. Bureau of Labor Statistics.



	1958	1957	1956
Jan.	122.3	118.2	114.6
Feb.	122.6	118.7	114.6
Mar.	123.3	118.9	114.7
Apr.	123.5	119.3	114.9
May	123.6	119.6	115.4
June	123.7	120.2	116.2
July	123.9	120.8	117.0
Aug.	123.7	121.0	116.8
Sept.	123.7	121.1	117.1
Oct.	....	121.1	117.7
Nov.	....	121.6	117.8
Dec.	....	121.6	118.0

U. S. Bureau of Labor Statistics.

30,000 units above the September, 1957, mark. While range sales were slightly off the year-ago mark, they still showed a 41,300 unit improvement over the August figure. Sales of farm and home freezers, water heaters, dishwashers, and food waste disposers all rose above the year-ago levels, says National Electrical Manufacturers Association.

Every one of the products watched over by the American Home Laundry Manufacturers' Association gained in September (see graph and table, Page 58). Total shipments came to 601,612 units—34 per cent better than the August figure and 4 per cent better than the September, 1957, mark. Biggest gainers were washer-dryers (up 45 per cent over the prior month) and electric dryers (up 52 per cent).

Vacuum cleaner sales in September rose from August's 280,226 to 299,618 units, almost equal to the corresponding year-ago mark, reports the Vacuum Cleaner Manufacturers Association.

Shipments of television receivers from factories to dealers in August advanced sharply over July's figure and edged out the year-ago mark, states the Electronic Industries Association.

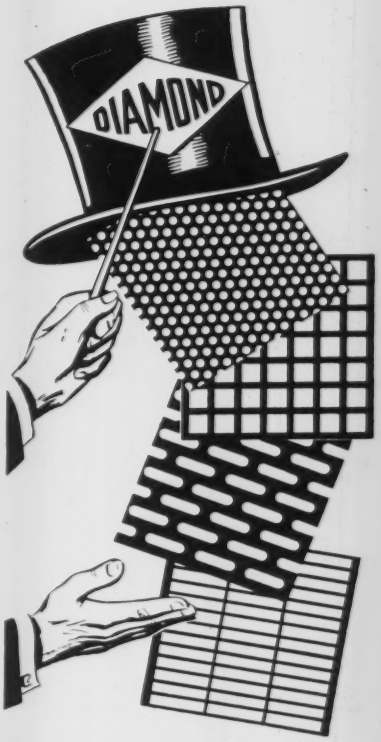
Construction Does It Again

To top off this review of industrial resurgence, F. W. Dodge Corp. announces that contracts for future construction showed the biggest year-to-year gains of 1958 in September. The total ($3,315,919,000) was 26 per cent above the September, 1957, figure, the third month in a row to show a gain of better than 20 per cent. It also marked the fifth consecutive month to go over the $3 billion mark, an unprecedented feat (see Page 42).

The weekly reports of heavy construction contracts by *Engineering News-Record* (see Barometers of Business, Page 57) indicate that the pace may have let up.

Index on Rampage

Watch STEEL's industrial production index climb the next few weeks as the auto industry goes into high gear. The 4-point gain for the week ended Oct. 25 (preliminary 146 per cent of the 1947-49 base) was accounted for almost entirely by the carmakers. Steel output and freight carloading scored an assist, with output of electric energy in the normal seasonal dip.



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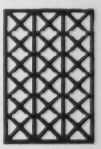
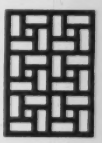
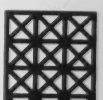
The popular Diamond Perforated-metal patterns shown above are only a few of the many illustrated and described in our 32-page Catalog No. 39. All of these standard patterns are available in a wide range of unit-opening sizes and we are always equally pleased to quote on original designs of any type or size.

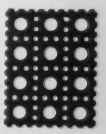


Catalog 39 also illustrates and describes our high-quality lines of *Ornamental Cane*, Perforated-Metal Sheets for Accoustical installations and Heavy-Duty Architectural Grilles. Write, today, for a free copy.





Correspondence is especially invited regarding ANY requirement for perforated-metal panels or parts. We are equipped to fabricate special sections to any desired extent and welcome opportunities to make money-saving suggestions.



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WYOMING WILKES-BARRE AREA **PA.**

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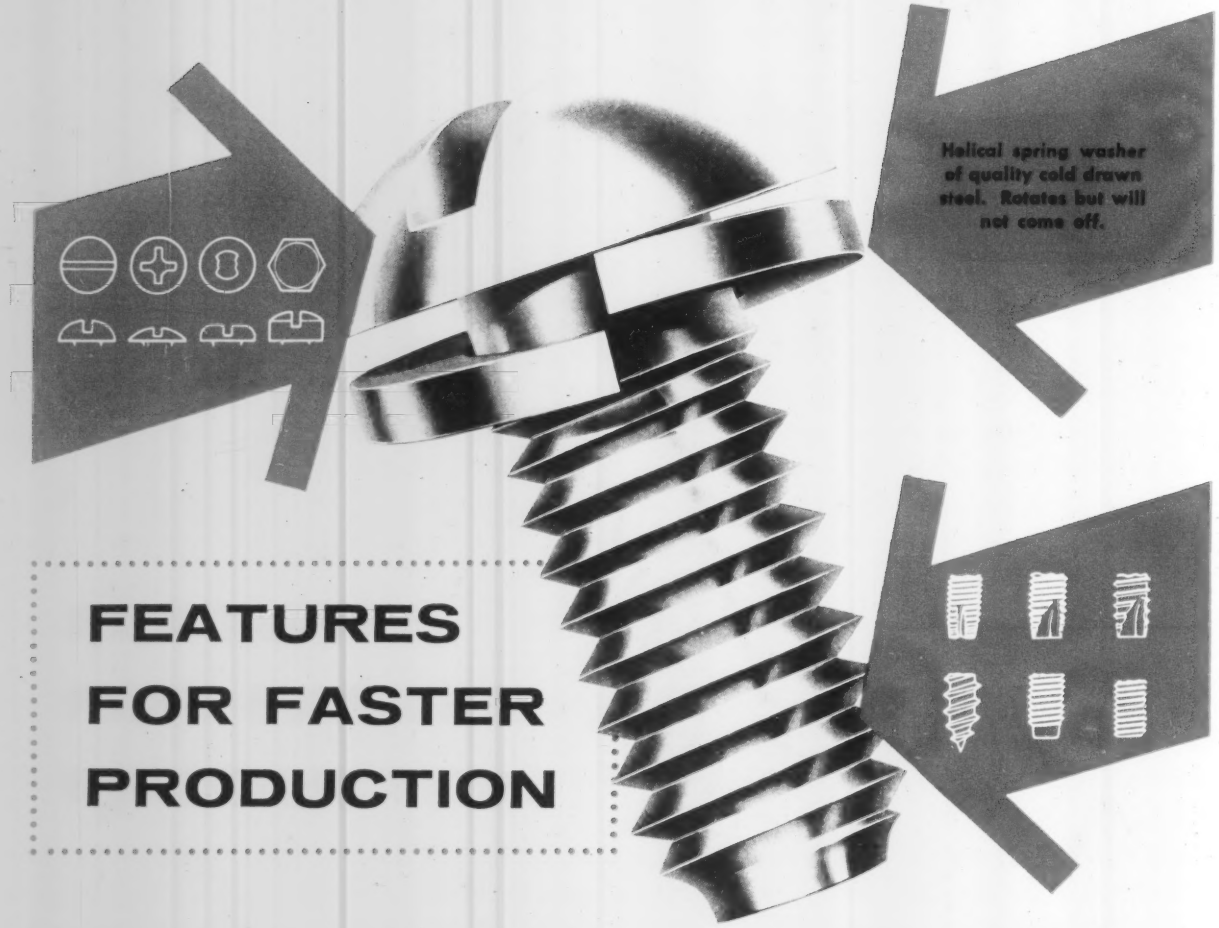

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Eaton-Reliance Springtites and Sems* are made to satisfy the needs of modern, high speed production in almost every field of metal fabricating. From design to final use, these fast fasteners offer features required by design and industrial engineers to make better, longer lasting products. With quality cold drawn steel as a foundation, Eaton-Reliance Springtites and Sems are headed and threaded on precision machines; the spring washer is added as a permanent part of the fastener and all work is inspected with a critical eye toward perfect performance under the most trying conditions. Products fastened with Eaton-Reliance industrial fasteners stay "factory tight" longer. Send for Engineering Bulletin S-49, or for threadcutting Springtites and Sems in Types 1-23-25, send for Engineering Bulletin S-49-A.

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RICHARD E. McGINNIS
Gregory Industries v. p.

GEORGE E. McCREE
Mac-it Parts sales m[gr.]

D. R. BERG
Dravo's new product mgr.

O. L. WIGTON
Hancock marketing v. p.

Richard E. McGinnis was appointed vice president-sales, **Gregory Industries Inc.**, Lorain, Ohio. **George E. Gregory Jr.** was elected financial vice president and treasurer. **Leonard C. Barr** was elected executive vice president. **Robert J. Kilmer**, former financial vice president and treasurer, was named vice president-trade relations.

Mac-it Parts Co., Lancaster, Pa., appointed **George E. McCreery** sales manager for its line of socket screw products. For the last six years, he has been manager of Mac-it Screw Div. He had served Strong, Carlisle & Hammond Co. Inc. for 18 years.

York, Pa., Div., **Borg-Warner Corp.**, appointed **Emil Peslar** vice president and general works manager, Grantley Works, at York; **S. S. Meadows**, vice president and general manager, Decatur, Ill., Works. Mr. Peslar was vice president and plant manager, Marvel-Schelber Products Div. at Decatur.

Howard Freyensee was appointed manager of sales, large excavators, **Bucyrus-Erie Co.**, South Milwaukee, Wis. He succeeds **L. C. Black**, recently named manager of domestic sales. Mr. Freyensee formerly was sales development manager, commercial cranes and excavators.

E. W. Schilling was elected president, **Peerless Wire Goods Co. Inc.**, Lafayette, Ind. He succeeds his father, the late **Ernest H. Schilling. Harold H. Clegg** was elected secretary-treasurer, succeeding **Charles O. Wiselogel**, who remains as vice president-sales.

D. R. Berg was appointed manager, new product development department, **Dravo Corp.**, Pittsburgh. He joined the company in 1938. Most recently he supervised product development for the machinery division.

H. Mer[rill] Bowman joined **T. B. Wood's Sons Co.**, Chambersburg, Pa., as vice president and director of sales. He succeeds **Gordon M. Henderson**, vice president, who will assist the president in administrative and production operations. Mr. Bowman was formerly vice president of American Pulley Co.

Frank P. Lucier was appointed sales manager, **Stanley Electric Tools Div.**, Stanley Works, New Britain, Conn. **Elmer W. Ellsworth** was named northeastern regional manager.

W. A. Black, chief engineer, steel and tube division, **Republic Steel Corp.**, was appointed assistant director of research in charge of activities at the Electro-Mechanical Research Center, Cleveland.

George E. Teller was made purchasing agent, foundry products and supplies, **Allis-Chalmers Mfg. Co.**, Milwaukee. He succeeds **Fred K. Schneider**, retired.

John E. Johnson was named manager, marketing department, electronic data processing division, **Radio Corp. of America.** He has headquarters at Camden, N. J. He formerly served as marketing vice president for Datamatic Div., Minneapolis-Honeywell Regulator Co.

O. L. Wigton was named to the new post of vice president-marketing, **Hancock Industries**, Jackson, Mich. For the last 12 years, he was general sales manager of Ford Motor Co.'s tractor and implement division, and central regional manager, Edsel Div. Mr. Wigton will co-ordinate and direct planning, marketing and sales of Hancock's two divisions in the East and two subsidiaries on the West Coast.

Louis E. Walz was named director of sales, **Taller & Cooper Inc.**, Brooklyn, N. Y., subsidiary of American Electronics Inc. He was manager for industrial sales at American Bosch-Arma Corp. **Benjamin Z. Ranan** was made director of manufacturing. He was chief industrial engineer, Sonotone Corp.

Bernard E. Magette was appointed general sales manager, **Universal Mfg. Corp.**, Zelienople, Pa. He was sales manager, Resolite Corp.

Raymond E. Calhoun, former sales manager, metal container division, **Jeta Metal Fabricators Inc.**, Yonkers, N. Y., was made commercial sales manager for both metal fabrication products and the new power equipment. **David Lavker** was made manager of government sales and contract administrator. **Michael Campagnale**, former plant superintendent, Atlantic Diesel Mfg. Co., Hamburg, Pa., was named manufacturing manager, and retains his post of chief engineer for power equipment. **Joseph Ascher** was made chief engineer, metal fabrications; **Lewis Balletto**, purchasing agent for all Jeta division; **Nicholas**

A. B. NIELSEN
Chrysler automotive sales post

DONALD R. SPOTZ
heads Pesco Products div.

DR. ERWIN A. HORIAK
Hercules Motors eng.-dir.

DON JOHNSON
Almco, Queen Products post

Sperdini, superintendent of production.

Chrysler Corp., Detroit, automotive sales group, appointed: **A. B. Nielsen**, executive assistant to group vice president; **William J. Bird**, assistant general sales manager, general sales office.

Donald R. Spotz was promoted from vice president and general sales manager to president and general manager, **Pesco Products Div.**, Bedford, Ohio, and the **Wooster, Ohio, Div.**, Borg-Warner Corp.

D. W. Boyles was appointed assistant purchasing agent for the northwest division of **National Supply Co.** He has headquarters in Casper, Wyo.

Ronald J. R. Kallman was named to the new post of western regional manager, Transac computer systems, by **Philco Corp.'s** government and industrial division. He has headquarters at Philco's western development laboratory, Palo Alto, Calif.

Robert J. MacDonald was appointed head of the bearing and friction materials section, mechanical research division, **Clevite Research Center**, Cleveland. He was with Battelle Memorial Institute.

Ralph A. Shonk was made vice president and general manager, **General Refractories Co. of Canada Ltd.**, Smithville, Ont.

Emil A. Vierow was appointed assistant to the manager of the Youngstown district of **Youngstown Sheet & Tube Co.** He was superintendent of fuel and power.

Dr. Erwin A. Horiak, chief engineer, **Hercules Motors Corp.**, Canton, Ohio, was named director of engineering. Assisting him will be: **J. L. Biasetti**, chief engineer; **Harry Cuthbert**, chief engineer-advanced engineering, in charge of new product development; **Robert E. Kerr**, in charge of experimental laboratory activities.

Franklin H. Schultz was appointed director of purchases, **Haughton Elevator Co.**, division of Toledo Scale Corp., Toledo, Ohio. He was assistant to **Everett W. Curtis**, retired.

Walter M. Northey was appointed general superintendent, **Gulf States Tube Corp.**, Rosenberg, Tex., subsidiary of Michigan Seamless Tube Co. He joined Michigan Seamless Tube in 1956, and has served as plant superintendent.

Joseph Wheeler Jr., New York regional sales manager, was elected a vice president of **Johnson Service Co.**, Milwaukee.

John Kozak was made chief engineer, **Hall-Toledo Inc.**, Toledo, Ohio. He succeeds **George Aberl**, resigned.

George E. Wind was appointed assistant service manager, **Clearing Machine Corp.**, division of U. S. Industries Inc., Chicago.

Capewell Mfg. Co., Hartford, Conn., appointed **Royal A. Wilson** as Michigan district manager.

Jack M. Schultz was named manager of technical sales, pigment division, **Aluminum Co. of America**, Pittsburgh.

Don Johnson was promoted to sales manager of **Almco, Queen Products Div.**, King-Seeley Corp., Albert Lea, Minn. He was Detroit branch manager, and is succeeded by **Al Sartor. Bruce Hardin** was made sales engineer, Michigan area, and is in Detroit.

Richard H. Lewin was appointed president, **Lewin-Mathes Co.**, St. Louis, division of Cerro de Pasco Corp. He succeeds the late **Felix S. Dreyer.** Mr. Lewin was executive vice president.

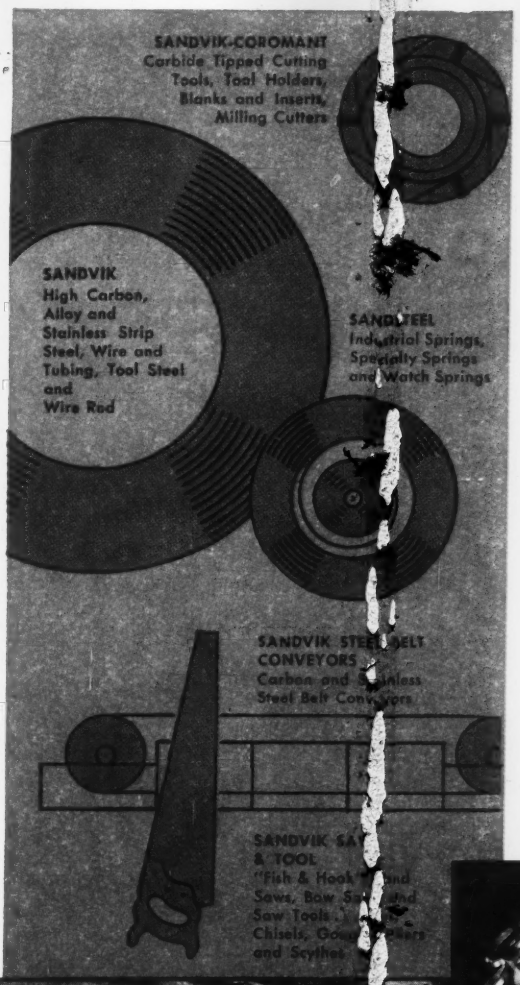
Mansfield D. Sprague was elected vice president for public and industrial relations, **American Machine & Foundry Co.**, New York. He was assistant secretary of defense for international security affairs.

Manuel Tama was elected president, **Ajax Engineering Corp.**, Trenton, N. J., to succeed **Dr. G. H. Clamer**, now chairman. **Mario Tama** was elected vice president.

F. H. Kirkpatrick was named assistant to the co-ordinator, production control, **Allegheny Ludlum Steel Corp.**, Pittsburgh. He was manager of the production control department at the Brackenridge, Pa., Works. He now succeeds **E. G. Painter**, recently named co-ordinator, production control.

Thomas A. Claiborne was appointed southwest district sales manager at Houston, newly established sales district for **Tennessee Products & Chemical Corp.**, and the parent company, **Tenn Tex Alloy Corp.**

Robert Curtin was appointed Chicago district manager for **Wall**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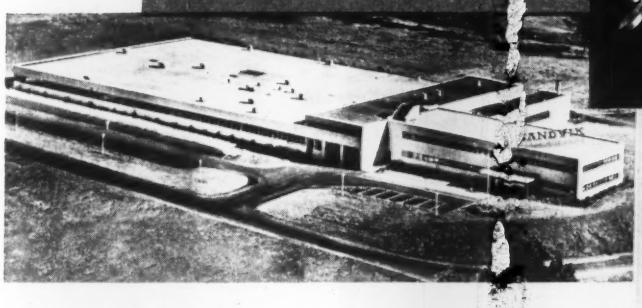

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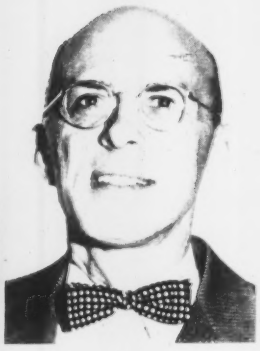
Worcester Pressed Steel v. p.

DONALD L. ROUSEY
Leslie Welding chief eng.

F. B. WILKINSON
Logansport Machine president

CHARLES L. RICHEY
Timken Roller div. post

LOUIS J. PRIOR
National Supply traffic mgr.



WILLIAM T. HOFFMAN
National Supply traffic mgr.

Tube & Metal Products Co., Newport, Tenn.

Charles L. Richey was appointed general production manager, Bearing Rock & Bit Div., **Timken Roller Bearing Co.**, Canton, Ohio. He was assistant general production manager.

Stuart F. Cooper was appointed sales manager for castings at **Cooper Alloy Corp.**, Hillside, N. J. He was manager of advertising and sales promotion. **Donald C. Huber** was made director of sales promotion and market research.

Don C. Leith, formerly with Eastern Air Devices Inc., joined **Price Electric Corp.**, Frederick, Md., as general sales manager.

Norman F. Garrett was elected vice president and general manager for manufacturing of **Crane Co.**, Chicago. He will direct six plants. He was general manager, Chicago manufacturing division. **Walter Kovalick** was made assistant general manager-Chicago.

National Supply Co., Pittsburgh, appointed **Louis J. Prior** traffic manager, machinery division; **William T. Hoffman**, traffic manager, tubular division. They will divide responsibilities formerly held by **John N. Lind** as general traffic manager. Mr. Lind recently was named director of transportation for Armco Steel Corp., of which National Supply is a subsidiary.

Donald J. Leman was made manager of systems and procedures, **Consolidated Electrodynamics Corp.**, Pasadena, Calif. He succeeds **Edward P. Fleischer**, recently named assistant to the president.

John C. Welch Jr. joined the West Coast sales staff of **O. Hommel Co.**, Pittsburgh. He is primarily concerned with porcelain enamel frit sales.

R. H. Gehring was made sales manager-industrial products in the Painesville, Ohio, home office of **Larco Inc.** Former sales engineer, Pittsburgh territory, he is succeeded by **R. B. Berkey.**

Worcester Pressed Steel Co., Worcester, Mass., named **Maynard F. Carter** vice president. In addition to duties as secretary and comptroller, he assumes general plant supervision.

Donald L. Rousey was appointed chief engineer, **Leslie Welding Co. Inc.**, Chicago. He was with Kritzer Radiant Coils Inc.

F. B. Wilkinson was elected president, **Logansport Machine Co. Inc.**, Logansport, Ind. Former vice president, he succeeds **Mrs. E. P. Wilkinson**, now chairman.

Brig. Gen. Monro MacCloskey, USAF, ret., was made assistant to the president, **Crosley Div.**, Avco Mfg. Corp., with offices in Washington.

International Resistance Co., Philadelphia, appointed **Jack R. Isken** chief, reliability and quality engineering.

George C. Hall succeeds **Harry A. Pierce**, retired, as manager of industrial distributor sales for **Rollway Bearing Co. Inc.**, Syracuse, N. Y.

Skinner Chuck Co., electric valve division, New Britain, Conn., appointed **William J. Bloudek** sales manager; **Anders Anderson**, sales office manager.

OBITUARIES...

Howard C. Walters, 41, works manager, Cleveland mill division, **Chase Brass & Copper Co.**, died Oct. 24.

George C. Kerr, 68, a buyer for the foundry of **Worthington Corp.**, Buffalo, died Oct. 20.

Arthur E. Heimbach, president of **General Railway Signal Co.**, Rochester, N. Y., died Oct. 17.

Edward B. Mullen, assistant manager, St. Louis Div., **United States Steel Corp.**, died recently.

Frank W. Wabiszewski, 66, executive vice president, Maynard Electric Steel Casting Co., Milwaukee, died Oct. 18.

Robert J. Barker, 78, president and treasurer, **Supreme Electric Products Corp.**, Rochester, N. Y., died Oct. 15.

Greenlee Transfer Machines can be Reworked to meet Product Changes

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Carborundum Builds

New buildings and equipment at Keasbey, N. J., plant will help meet gain in refractory use

CARBORUNDUM CO., Niagara Falls, N. Y., has launched a $1-million expansion and modernization program at its Refractories Div. plant in Keasbey, N. J. Boyd M. Johnson, vice president, is general manager of the division.

New buildings will be erected; production facilities will be realigned; and new equipment will be installed.

New equipment will include a 225-ft long tunnel kiln, three tunnel dryers equipped with individual heating, air circulating, conveyor, and mechanical handling units. Other improvements will include new mixing machines and tamping equipment; waste-heat conservation units; and transformer units for additional power.

• **Program's Aim**—When materials are moved into a new mold and warehouse building, it will open the way for the realignment of equipment to improve the flow of manufacturing. Benefits will include increased productivity, more orderly flow of materials, and improved working conditions.

"Expansion of capacity is to keep pace with increased volume demand brought about by the anticipated rise in the economy," says Mr. Johnson. "Modernization, involving improved manufacturing techniques, is to satisfy the shape complexity, high tolerance, and quality control requirements brought about by broadening uses for the products."

Pusey & Jones Diversify

Pusey & Jones Corp., Wilmington, Del., has added metal fabrication to its operations as part of an extensive expansion and diversification program. Up to now, the firm has concentrated on shipbuilding and the manufacture of papermaking machinery.

Alcoa To Build Plant

Aluminum Co. of America, Pittsburgh, plans to build a facility to produce roller-coated aluminum sheet in widths exceeding 60 in. The unit will adjoin the North Plant sheet mill at Alcoa, Tenn. Products will include aluminum alloy sheet and coils with baked enamel finishes.

Boosts Vacuum Melting

Latrobe Steel Co., Latrobe, Pa., is expanding its vacuum melting operations for the production of superalloy steels. Another consumable electrode vacuum melting furnace has been purchased from Lectromelt Furnace Div., McGraw-Edison Co., Pittsburgh. It will be housed in a new structure and is scheduled to be in operation early in 1959. Says Latrobe: "Needs of the jet and missile fields for steels of extraordinary purity indicate a stepup of our capacity to produce vacuum melted steels."

Foundry To Etch Castings

Chemical Contour Corp., Downey, Calif., has licensed Howard Foundry Co., Chicago, to use its processes and etchant compositions for chemical milling of castings. Initially, Howard will concentrate on thin-wall magnesium alloy and nodular iron castings. Eventually, all ferrous and nonferrous alloy castings will be processed. Chemical Contour has 51 different etchants for 62 different alloys. More etchants are being developed.

Rolled Alloys Expands

Rolled Alloys Inc., Detroit, has enlarged its steel service center by purchase of part of the Packard Motor Co. plant in that city. The firm is a distributor of Eastern Stainless Steel Corp. products and a leading marketer of heat and corrosion resistant alloys. Executive offices of Rolled Alloys will be at 5309 Concord, adjoining the 43,000 sq ft warehouse.

Forms Hydra-Blast Div.

Automation Services Inc., Detroit, formed a Hydra-Blast Mfg. Div. Products will include wet-blasting, custom-designed, automatic, and manual machines and process cycles; specially compounded wet-blasting abrasives and related supplies.

Operates Blooming Mill

Bethlehem Pacific Coast Steel Corp. has started operating its new 32-in. blooming mill at Seattle.

The mill is one of the major facilities included in a $25-million expansion and modernization program at Seattle. It can reduce a 24-in. square ingot to a 4-in. square billet in 3 minutes. A new merchant bar mill is being constructed to process the billets.

The steel plant has increased the size of its ingots for rolling in the new blooming mill to 6½ tons each, six times their former weight.

Birdsboro Widens Line

Timken Roller Bearing Co., Canton, Ohio, purchased from Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa., a mill for piercing alloy and stainless steel tubing. The complete mill with inlet and outlet tables is scheduled for delivery to Timken's Gambrinus Works in June, 1959.

G. Clymer Brooke, president of Birdsboro Steel, says this is the first piercing mill ever built by his company and represents the start of a complete line of seamless tube mill equipment, including piercers, plug mills, elongators, reelers, sizing mills, stretch reducing mills, mandrel mills, tube straighteners, hydrostatic tube testers, and related handling equipment. Birdsboro will also make a complete line of welded tube mill equipment.

Grants Etching License

Diversey Corp., Chicago, has granted a nonexclusive license to Chas. Pfizer & Co. Inc., Brooklyn, N. Y., covering its method of etching aluminum and aluminum base alloys. Diversey's use of gluconic acid derivatives with caustic soda solutions in aluminum etching operations led to the development of Aluminux which prevents sludging of aluminum oxide while producing a desirable finish.

Irwin Foundry Renamed

Irwin Foundry & Mine Car Co., Irwin, Pa., changed its name to Irwin-Sensenich Corp. The firm makes coal mine cars and related

mining accessories, industrial cars, heavy duty material handling rolling stock, and supporting equipment.

Thompson Regroups

Thompson Products Inc., Cleveland, has regrouped five of its manufacturing divisions to combine all of the company's automotive original equipment and replacement parts activities in the U. S. under Edward P. Riley, vice president who previously directed the Tapco group of divisions. Stanley C. Pace succeeds Mr. Riley as manager of that operation.

James H. Coolidge, vice president, was named chief fiscal officer of Thompson Ramo Wooldridge Inc. when Thompson Products' merger with Ramo-Wooldridge Corp. became effective Oct. 31.

Affected by the realignment are: Valve, light metals, and replacement divisions in Cleveland; Michigan Div., with operations in Cleveland and Warren, Ohio, Detroit and Portland, Mich.; and Ramsey Corp. (wholly owned subsidiary) with plants in Manchester and Sullivan, Mo.

Gets Swiss Gear License

Philadelphia Gear Corp., Philadelphia, has been appointed exclusive agent in the U. S. and territories for the manufacture of industrial gears designed by Maag Gear-Wheel Co. Ltd., Zurich, Switzerland.

Shifts Decatur Operations

One of the two plants of the Marvel-Schebler Products Div., Borg-Warner Corp., at Decatur, Ill., is being converted to the manufacture of air-conditioning and refrigeration equipment. Formerly known as the Transmission Dept., the plant has been renamed the Decatur Works of the York (Pa.) Div. The other Decatur plant will continue to operate as the Marvel-Schebler Products Div., making carburetion equipment and control rod mechanisms for nuclear reactors. S. S. Meadows is vice president of the York Div. and is general manager of the Decatur Works. A. B. Pulliam continues as vice president and general manager of Marvel-Schebler.

NEW ADDRESSES

John A. Roebling's Sons Corp., Trenton, N. J., moved its district offices and warehouse to 340 Roebling Rd., South San Francisco, Calif. The firm, a subsidiary of Colorado Fuel & Iron Corp., makes wire and cold rolled products, wire rope, electrical wire and cable, and fabricates bridges.

Allmetal Screw Products Inc., Garden City, N. Y., opened a new office and warehouse for its West Coast Div. at 5822 W. Washington Blvd., Culver City, Calif. A new office for its Midwest Div. was opened at 6424 W. Belmont Ave., Chicago 34, Ill.

Electric Storage Battery Co. moved its corporate general offices to 2 Penn Center Plaza at 15th Street and Pennsylvania Boulevard, Philadelphia, Pa. Headquarters of its Exide Industrial Div. were moved to the plant at Rising Sun and Adams Avenues, Philadelphia.

Colson Corp., maker of material handling equipment and institutional wheeled equipment, moved its executive sales offices to 7 S. Dearborn St., Chicago, Ill.

Mettler Co. Inc., a division of Eclipse Fuel Engineering Co., moved to 1101 Buchanan St., Rockford, Ill.

General Logistics Div., Aeroquip Corp., moved to a new office and factory building at 2929 Floyd St., Burbank, Calif. The division makes cargo tie-down and load control equipment.

NEW PLANTS

Jones & Laughlin Steel Warehouse Div., Jones & Laughlin Steel Corp., Pittsburgh, opened a service center at 6901 Preston Highway, Louisville, Ky. The facility includes more than 100,000 sq ft of floor area, says Ray Hale, Louisville warehouse manager.

James A. Coe Steel Co., Raritan, N. J., leased a building on Green Lane, Bristol, Pa. The firm is a distributor of sheet, strip, coil, and plate steel.

CONSOLIDATIONS

Eclipse Fuel Engineering Co., Rockford, Ill., purchased **Lookout Boiler & Mfg. Co.**, Chattanooga, Tenn., and will operate it as the Lookout Boiler Div. Everett Magnuson, vice president of Eclipse, will direct operations.

NEW OFFICES

Fuller Co., Catasauqua, Pa., established a district office at 280 Madison Ave., New York, N. Y., managed by Andrew van der Lyn. The firm is a subsidiary of General American Transportation Corp., Chicago.

ASSOCIATIONS

Thomas R. Hughes was elected president of the **Service Tools Institute**, New York. He is vice president and general manager of the Utica Drop Forge & Tool Div., Kelsey-Hayes Co., Utica, N. Y.

Tri-State Structural Steel Fabricators Association, Pittsburgh, elected these officers: President, David Zahniser, Levinson Steel Co., Pittsburgh; vice president, R. E. Prince, Ohio Valley Structural Steel Co., Newton Falls, Ohio; secretary, John Agey, Ingalls Iron Works, Verona, Pa.; and treasurer, John Cook, Keystone Fabricating Co., Pittsburgh.

Miss Janet Weiner, treasurer of the **National Association of Waste Material Dealers Inc.**, New York, will retire Jan. 1 after 35 years of service. She will be succeeded by M. J. Mighdoll, NAWMD administrator.

A committee will be formed to co-ordinate mechanical test methods used in international standardization of metals and metal products. It will be established by the **International Organization for Standardization**, Geneva, Switzerland, and designated ISO/Metesco.

The steel plowshare was the basic agricultural tool when Wyman-Gordon was established seventy-five years ago. At that time, it took approximately 50 per cent of the nation's work force on farms to produce food for our country's needs.

With today's mechanical farm implements, it requires only 12½ per cent to feed our people. The development of modern farm implements, motor cars, trucks and tractors, railroad locomotives, and the "Mach era" aircraft and space vehicles, would have been impossible without forgings.

Whenever the ultimate is required in power, speed, endurance or reliability there is no substitute for a forging. Today, as for seventy-five years, Wyman-Gordon continues in the forefront in new forging developments.

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Technical Outlook

JET CUTTER—Want to cut a hole where you can't get a torch or drill? National Northern Corp., division of American Chemical & Potash Corp., West Hanover, Mass., has a handy device that works like a rocket engine. A carefully controlled solid propellent (which may contain abrasive particles) literally squirts a hole in metal. It can be put in a remote location and triggered electrically. Mounted in a suitable carriage, it could cut a large round opening much like a cutting torch zips through tanks to make hatch openings.

RED HOT ELECTRIC MOTOR—Jet aircraft, missiles, and rockets will get the benefits of a new Westinghouse motor that operates in temperatures of 1000° F and more. A special development for limited application, it uses silver windings, treated graphite bearings, and a kind of "hot rock" insulation made of inorganic materials.

TOUGH SHOTBLAST LINERS—A new chromium vanadium steel with unusually high percentages of carbon and vanadium is tough enough for shotblasting liners, says Latrobe Steel Co., Latrobe, Pa. Tests show that the alloy lasts four to ten times longer than materials normally used for this purpose.

WARM FORMING— Engineers at Lockheed Aircraft Co. report that when they tried to form a severe flange on AM 350 annealed tubes nearly every part cracked. Then they heated both the workpiece and the tool to 350° F (barely warm for a metalforming operation) and eliminated the problem. One theory: Severe forming was raising the temperature of the material to about 300° F; preheating of both workpiece and tool simply provided an even heat and precluded thermal shock.

OLD PROCESS HELPS BELL—An ancient technique called metal sputtering may lead to major advances in printed circuits for electronic equipment, says Bell Telephone Laboratories, New York. It has laid down films of tantalum and titanium thin enough to act as resistors. Capacitors are made by oxidizing the first coating and coating that with a film of gold. Bell says it is one of the most convenient ways to make useful thin films from metals with high melting points. In addition, they adhere strongly and film thickness can be controlled within quite narrow tolerances.

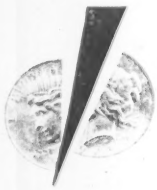
WATER PAINTS GAIN—Battelle Memorial Institute, Columbus, Ohio, says this country's use of such protective coatings has doubled during the last decade. Although their future seems unlimited, the institute's Ernest R. Mueller lists these problems which must be solved: 1. Better adhesion of exterior types to all surfaces. 2. A formula for a glossy enamel. 3. A hard, marproof industrial enamel. 4. Improved water resistance. 5. Built-in rust inhibitors for iron and steel.

TOWARD BETTER PLATING—A new process, called Silva-Brite, is said to be a step forward in permanently hard, mirror finishes. Features include speed, plating solutions at room temperature, 100 per cent specular reflection from heavy to flash deposits which are hard (Brinell 135) and ductile. A simple treatment converts most plating solutions, says American Platinum & Silver Div., Englehard Industries Inc., Newark, N. J.

THIN SKIN WELDING— Engineers at Rohr Aircraft Co., Chula Vista, Calif., perfected a method for welding thin skin for aircraft parts. First they turn a carefully controlled lip on the edge of each skin where the joint is to be made. (The lip is turned 90 degrees to the foil plane.) These right-angle flanges are butted, clamped, and a backup bar is placed underneath to channel a helium atmosphere to the underside of the joint. A Heliarc welder passes down the top of the joint, melting the flange down. No filler material is added—the weld heat treats to parent metal properties, and the ductility of the parent metal is reduced only slightly at the weld joint. Aerodynamic smoothness is easily maintained, say Rohr engineers.

Furnace Slashes Annealing Costs in Half

How We Beat the Cost Crisis



THE JOB: Anneal Parts Between Drawing Operations

OLD METHOD	NEW METHOD
Wash	Wash
Transfer	Transfer
Anneal	Anneal
Transfer	Relubricate
Pickle	ELIMINATED
Transfer	
Relubricate	

LOADING AND UNLOADING on this line are manual operations—but they are the only ones. The rest, including annealing, relubricating, and transfer, are automatic

Continuous operation through annealing and relubrication of deep drawn parts has eliminated pickling and reduced material handling. The investment has a three-year payoff. This article is one of the top entries in the Cost Crisis Awards Competition. Another will be published next week

WHEN YOU set out to cut manufacturing costs, you often can reap benefits you hadn't counted on.

That's the way it worked at Worcester Pressed Steel Co., Worcester, Mass. What started out as a program to cut annealing costs also turned up solutions for handling, brazing, and part-quality problems.

At this job stamping company, parts of all sizes and configurations, including deep drawn pieces, are turned out for a long list of customers.

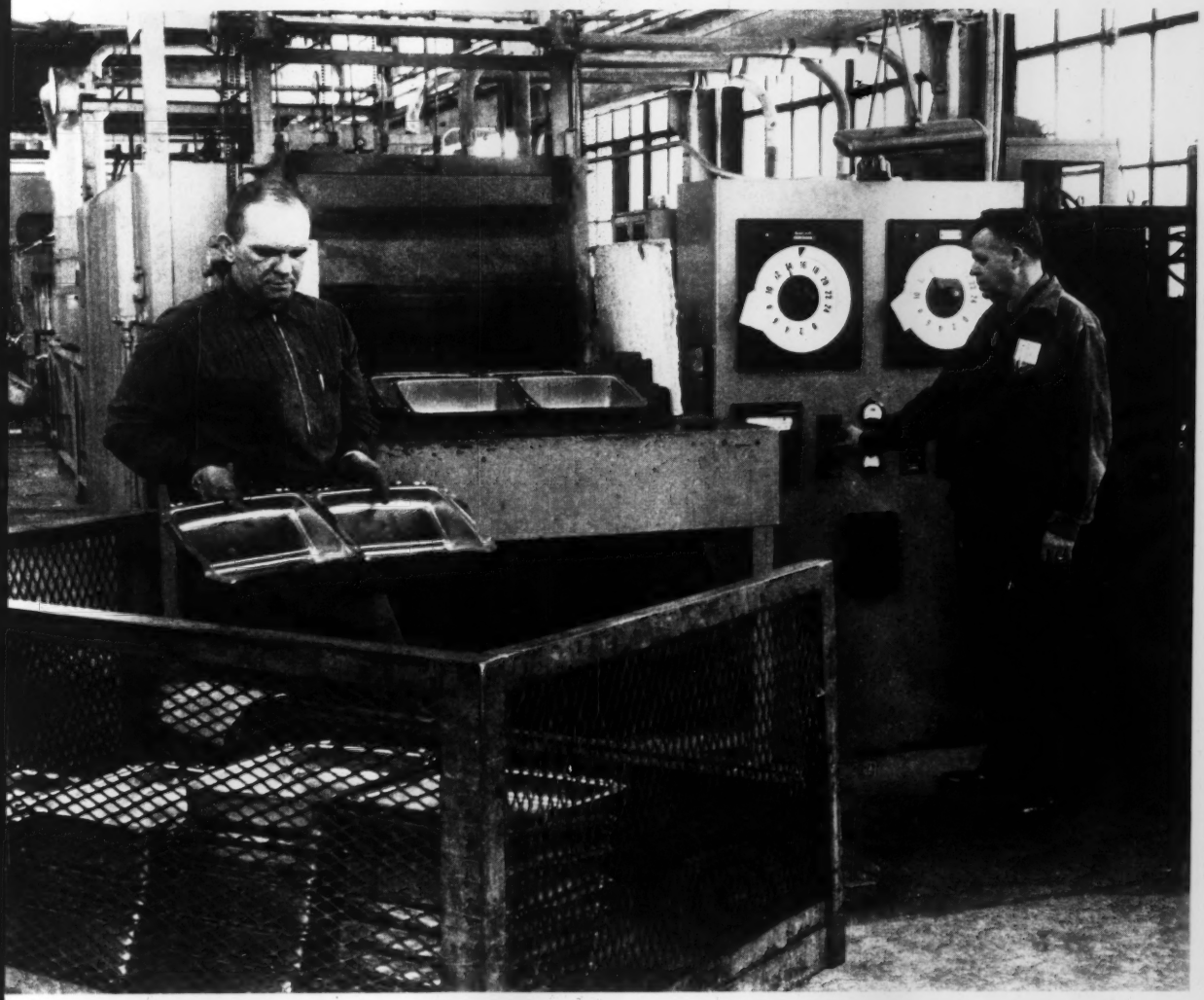
Secondary operations like machining, tapping, welding, washing, and painting often must be done.

In the business of subcontracting, constant patrolling of all costs is a must. Without it you have no vestige of competitive strength.

Production men at Worcester know this. In their over-all attention to costs, says Clarence G. Page, plant engineer, they took particular note of the expense of hardening and annealing.

• **How It Was**—Car bottom furnaces, pusher type furnaces with partially controlled atmosphere, and electric furnaces were used for heat treating. Much of the equipment was old.

Parts were washed to remove the drawing lubricants, then put through the annealing operations.



Next, pickling was necessary to remove scale. Finally, the parts were relubricated for successive operations.

The system took a lot of hauling of parts from washing, to annealing, to pickling, to lubrication.

• **And Now**—After analyzing their needs, and the equipment available to them, Worcester chose a continuous feed, atmospheric control furnace with a temperature limit of 2050° F. Built by C. I. Hayes Inc., Cranston, R. I., the furnace was designed with a door opening 12 ft high, and with a belt 30 ft wide to take care of the large drawn parts frequently processed.

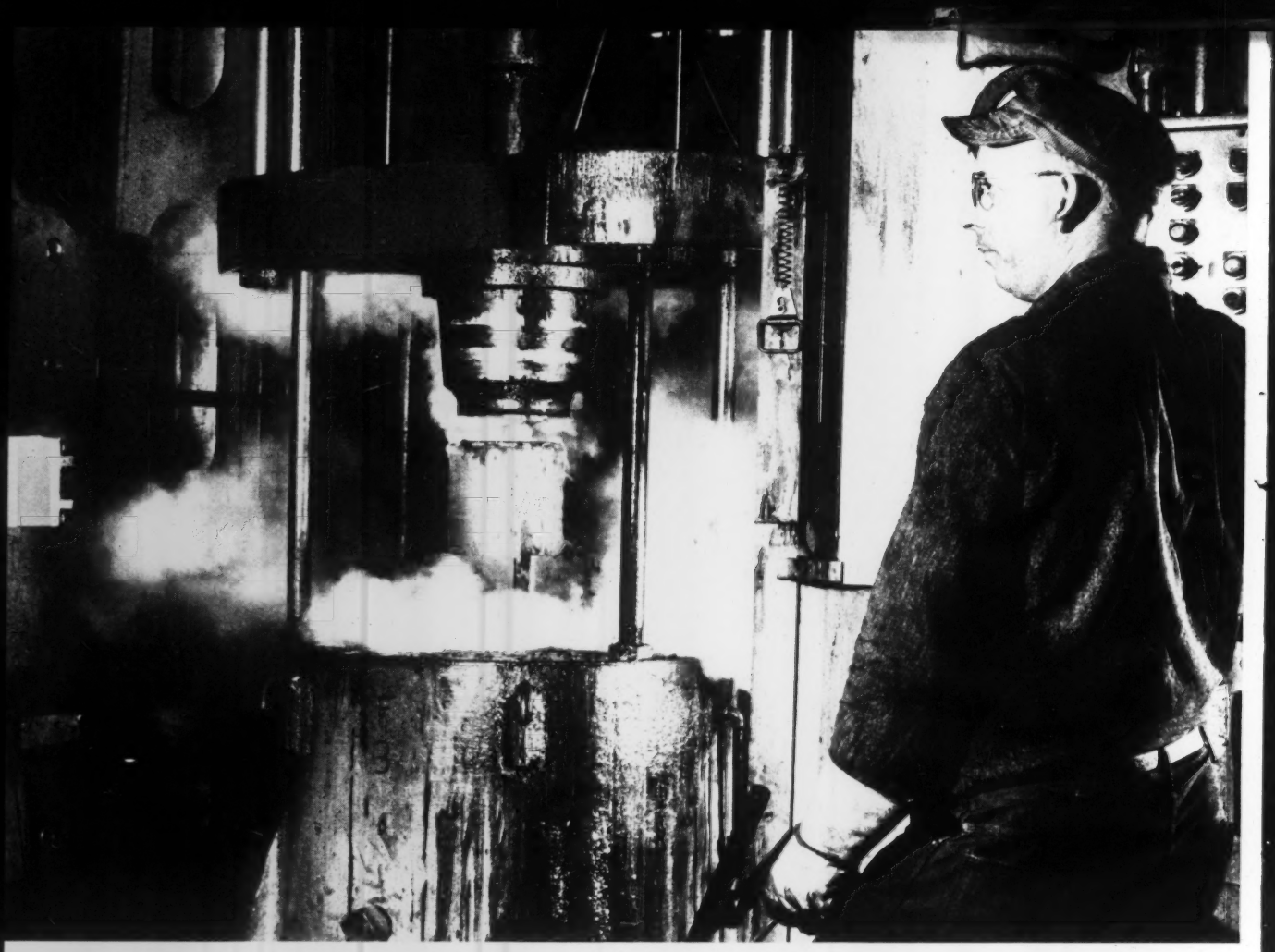
Taking advantage of the continuous annealing operation, engineers worked out a transfer to take the parts from the furnace, to the soap coating machine (for relubrication of parts), and then off the line.

• **Savings**—Equipment and process revisions trimmed annealing costs by 50 per cent giving 1958 customers the advantage of costs at the 1951-52 level.

Closer control of the new atmosphere furnace eliminated pickling.

In addition: Higher, more closely controlled temperature makes the furnace suitable for brazing—a job that used to require special equipment. Also, the new furnace can accommodate all the high alloy steels. Added floor space was made available when seven of the older furnaces were removed. With the added speed of the new furnace, much overtime and extra operations were eliminated. Closer control of annealing has led to better quality work, with a reduction in scrap.

• **Payoff**—Cost of the project came to about $75,000. The investment should be recovered in less than three years.



The blank, sheared to length from a billet, is hot forged into a cup at 2150° F

Hot-Cold Forming Boosts Quality, Prunes Costs

These advantages are cited by shellmaker: Less starting material is needed; lower carbon steel can be used; tempering and quenching are eliminated; machining steps are reduced

COLD WORKING operations, used to augment hot forging, may help simplify your production sequence and reduce the number of secondary operations needed to get a finished product.

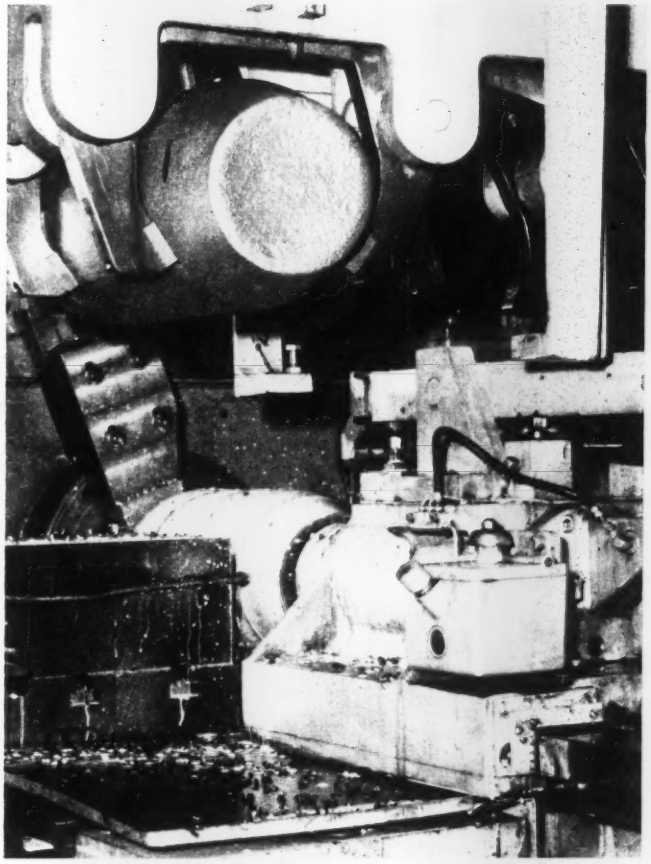
It's working that way at the Berwick, Pa., plant of American Car & Foundry Div., ACF Industries Inc. A combination hot cup, cold draw process is turning out 8-in. howitzer shells.

Herbert H. Rogge, president of the ACF division, describes the method as "a marriage of the finer points of forging and cold working that can provide industry with additional knowhow about the cold extrusion process, in addition to supplying the military with an improved ordnance product."

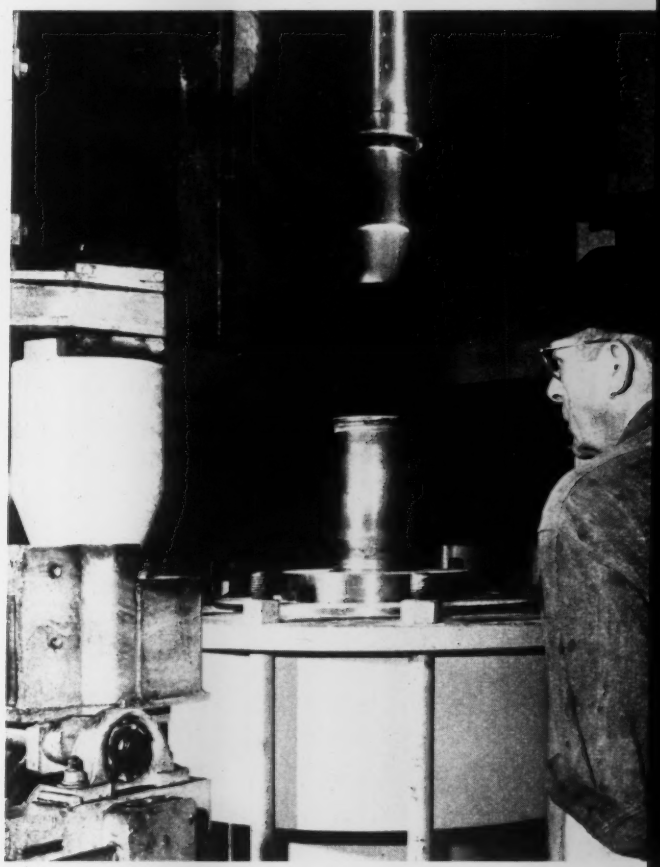
• **Plusses** — When compared with conventional processes for making shells this size (hot forging, then machining complete, relying on heat treating to get necessary mechanical properties), the combination method has these advantages, ACF reports:

1. Less starting material is required per piece.
2. Lower carbon steel can be used.
3. No quenching or tempering is required.
4. Less machining is needed.

Also, quality of the finished shell is said to be superior. A unit weight spread of 18 ounces has been ob-

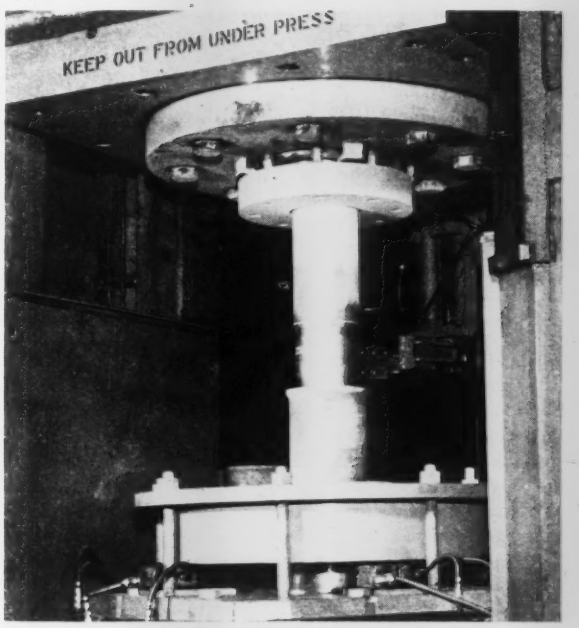


Rough machining faces the open end of the forging, removes any surface defects, and assures starting concentricity

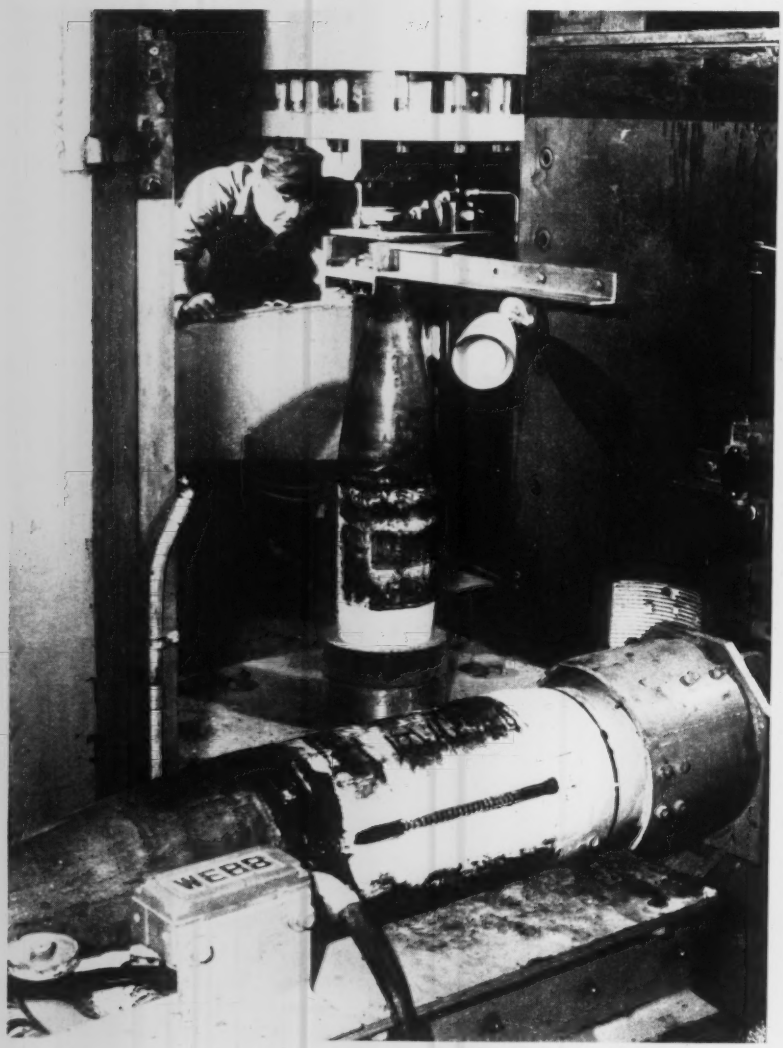


After phosphate coating, the machined cup is cold extruded (forward) in this press

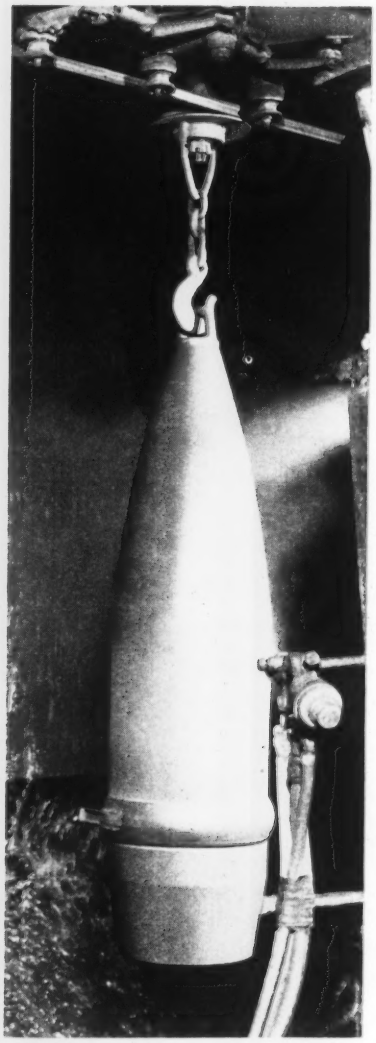
After a second phosphate coating, the shell is cold coined



Here the coined piece is being cold drawn through a die



After a final phosphate coating, the shell goes through this one-step nosing operation that gives the nose the exact shape required by the military. The forming operations on the shell are complete



The finished shell has been machined, the rotating band added, the base plate welded, and the part is painted

tained with ACF shells, with a correspondingly consistent volume. The acceptable range permitted by specification is 4.8 lb. Shells now have a 40-microinch finish. Former allowance: 250 microinches.

• **Steel Saving**—Raw material used in the new method is a 7⅜-in. section of a round-cornered, square billet of semifinished steel, weighing 189 lb. The conventional method used a starting piece of the same cross section weighing 290 lb. This represents about 30 per cent saved in starting material.

• **Low-Carbon Steel** — The conventional method attains specified mechanical properties of yield, elongation, and reduction in area by heat treating a 0.55 to 0.65 per cent carbon steel. The ACF method produces the same mechanical requirements by cold working 0.20 per cent carbon steel.

• **Less Heat Treat** — Conventional shells must be heated to the austenitic range, oil quenched, then tempered prior to final machining. The new method uses two selective heat treatments, both induction. One follows forward extruding, prior to coining and drawing. The second follows drawing, prior to nosing. The cold nosed shell is stress relieved prior to finishing.

• **Less Machining** — Conventional shells are rough and finish machined to final shape and size. At ACF, the configuration of the cold work dies determines the surface contour of the finished shell. The bulk of the material comes off while turning the hot forged cup, facing and chamfering the drawn piece, facing, boring, and tapping the nose, and preparing the rotating band groove. From 25 to 30 lb of metal is machined off, vs. 90 to 95 by conventional practice.

• **Efficiency**—The process lends itself to conveyorized handling. ACF reports that a shell can be made on the new line at a saving in manhours of about 50 per cent.

Eight Rules for Simplified Drafting

- **Use words to eliminate drawings or projected views:** Description is adequate for sleeve or threaded stud. Specify "hex, square, or round stock" instead of drawing another view.
- **Omit elaborate details:** Use broken lines for outside or pitch diameters. Instead of drawing teeth or threads, use dotted lines or words. Eliminate arrowheads.
- **Use keyed legends for nuts, bolts, and other hardware:** Show outline only when necessary for location.
- **Use dotted lines, cross sectioning only for clarity.**
- **Use symbols for hole sizes.**
- **Avoid hand lettering.**
- **Use datum lines.**
- **Make freehand drawings whenever possible.**

Drafting Made Easier

Simplified methods reduce manpower requirements. Side benefits include improved readability and reduction of production training time for new personnel

SIMPLIFIED drafting can save you up to 30 per cent in manpower, says American Machine & Foundry Co.

The firm discovered such savings after adopting the technique at its engineering service laboratory, Greenwich, Conn.

• **Made Analysis** — AMF started by thoroughly checking its drawing costs. Here's what it found: An average drawing took about 13 hours, or 4.5 hours per square foot; draftsmen spent about 75 per cent of their time on productive work.

"We were satisfied with the individual's work," says Jay H. Bergen, director of the laboratory. "We added to his efficiency by having clerical people do his legwork, such as obtaining catalogs and prints. But the real scope of our savings became apparent after we took a closer look at the prints themselves." Here's what he found:

• 72 per cent of the drawings contained unnecessary information.

• 35 per cent could have been drawn on smaller paper.

• 36 per cent contained views that added nothing to the information displayed.

• 9 per cent could have been described with words instead of an illustration.

After adopting the simplified approach, AMF gained these benefits: 1. The morale of draftsmen has shown marked improvement. 2. Planning and inspection departments report their people find far less need to contact engineering people for print clarifications. 3. Production managers say it's easier to train employees with simplified drawings. 4. Shopmen readily accept the new technique, and lose less time in reading and interpreting symbols.

• **Training**—Mr. Bergen has been running simplified drafting seminars for the National Metal Trades Association as part of a cost cutting program. Five simplified drafting classes are scheduled for this fall.

Authority Asks Co-operation

Too much publicity on simplified drafting could work against 14 years of effort to unify blueprint practices in the U. S., Great Britain, and Canada, maintains George Noble, standards department head, Dominion Engineering Works Ltd., Montreal, Canada. He is also vice president of the committee on engineering drawings, Canadian Standards Association.

• **Moment of Truth**—Many rugged individualists who advocate simplification are often at crosspurposes with those who favor unification of practices, says Mr. Noble.

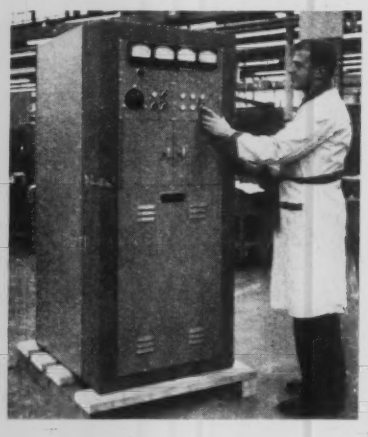
Simplified drafting, often publicized as a new concept, has been around for some time. As proof, Mr. Noble cites published national standards like American Standard Y14.1-1957 and the British Standard 308. Both include well-established methods and conventions for saving time in the drafting office.

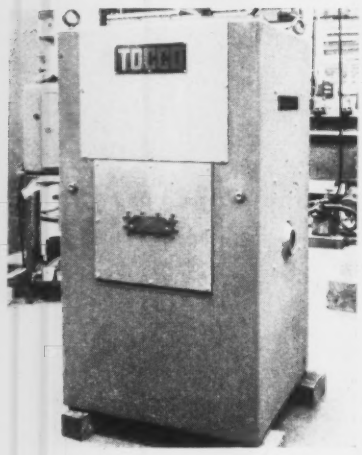
Such procedures are constantly under review in all three countries. New ideas, including simplifications techniques, are evaluated by separate committees with a view to eventual incorporation when they receive wider acceptance by industry.

Publication of a unified practice is contingent upon general acceptance by all concerned, Mr. Noble holds. "Otherwise, we are faced with uncontrolled simplification which could run to extremes. We must contend with those who go overboard so completely for simplication they produce drawings which are unclear and do not contain essential information."

This enclosed generator . . .

A remote control panel . . .





And this work station . . .

Boost Heat Treat Flexibility

Line of induction heating equipment divides three major components into separate "building block" units. It also means less space is needed on the production line

BUILDING BLOCK ideas started with special-purpose machine tools, but they are turning up in countless other types of equipment as manufacturers look for ways to save their customers' money.

Latest to adapt the concept to its equipment is Ohio Crankshaft Co., Cleveland. In a complete re-engineering of the Tocco line of induction heat treating equipment, the company has built system components as integral units.

• **Breakdown** — In the previous system, the generator was separate and remote (at least for big systems) but the control and the work station were incorporated in one relatively large unit. This meant considerable space had to be provided on the production line.

More important, it meant that when a user was ready to take out one special unit and add another, he frequently had to part with the whole machine, including control and work station.

• **Independent**—Now, the system is broken down into its three logical elements: Generator, control system, and work station. Only the work station needs to be on the production line. Both the generator and the control panel can be set against a wall or in a remote area out of the way.

More important, if the work station becomes obsolete for the job, another can be installed using the same generator and control, provided that the new work is within the capacity range of the power supply.

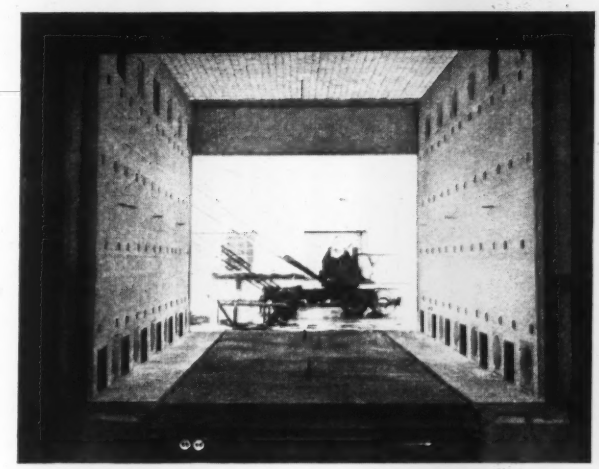
• **Generators**—The new generators have 7½, 15, or 30 kw at 10 kc, or you can get a 30-kw generator with a 3-kc range. The large ones are offered in 50 through 350 kw and they include 10, 3, or 1 kc ranges.

On large generators, if a critical part overheats, a thermally operated circuit breaker halts the operation. It remains open until a maintenance man recloses it. A series of such circuit breakers take the place of signals that light up to warn of overheating, go out when the cycle is stopped. By noticing which relay has tripped, the maintenance man knows which part overheated, simplifying trouble-shooting.

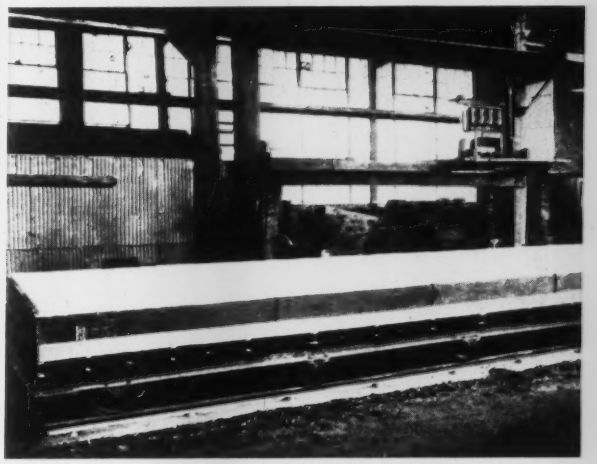
• **Controls** — One control circuit can be set up to govern one or more work stations. The control panel's top and side panels can be removed to give added access for adjustments.

On small series, the generator can be mounted behind the panel. Panel and generator can be in a single enclosure, or mounted separately.

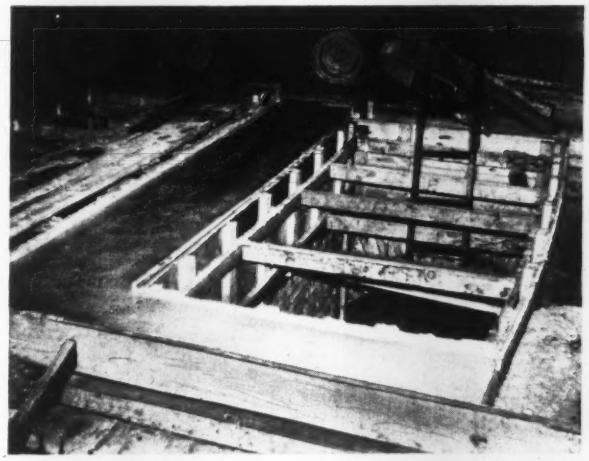
• **Work Stations** — Top and rear cabinet panels on the work stations can be removed to provide adjustment access. Since the control section is separate, work stations are smaller, take less room on the production floor.



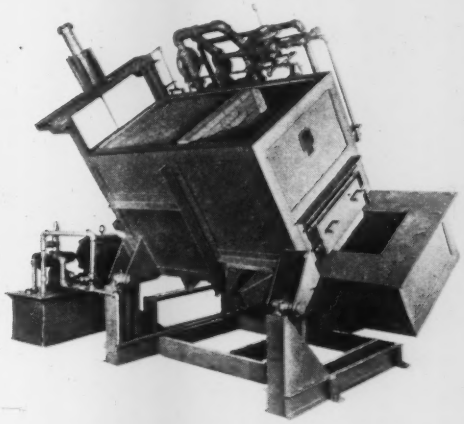
In this stress-relieving furnace, B&W Kaocrete-D is used on the floor ledges, car top, in the door jamb and at the end of the flat roof where it withstands the abrasion of the door. This material is specially designed to withstand severe abrasive conditions and mechanical abuse.



Heavy duty car top service requires a high strength castable. B&W Kaocrete-D is excellently suited for this service at temperatures to 2500 F. B&W Kaocrete-32 is recommended for service above this range.



B&W Kaocrete-32 has been cast to form the curb walls of a soaking pit. When mechanical abuse from ingots damages the curb, Kaocrete-32 has the necessary properties to localize the damage, thus maintaining the serviceability of the rest of the curb.



The castable lining of this aluminum reverberatory furnace must have unusually high strength to withstand the considerable physical abuse of charging, operating and cleaning, while resisting the penetration of the molten metal. Kaocrete-D is widely used in this application.

How B&W refractory castables solve abrasion problems

Refractory castable linings used in metal-working furnaces are often subjected to severe mechanical abuse. Scraping by hand tools, loading and unloading, and the action of the molten metal and particle-laden gases all affect the life of refractories. Among B&W's line of refractory castables are two that are particularly suited to withstand unusual abrasive conditions. They are B&W Kaocrete-D and B&W Kaocrete-32, both of which have been used successfully in many demanding applications.

Send for a copy of B&W Bulletin R-35A. It gives additional information on versatile B&W refractory castables.

R606

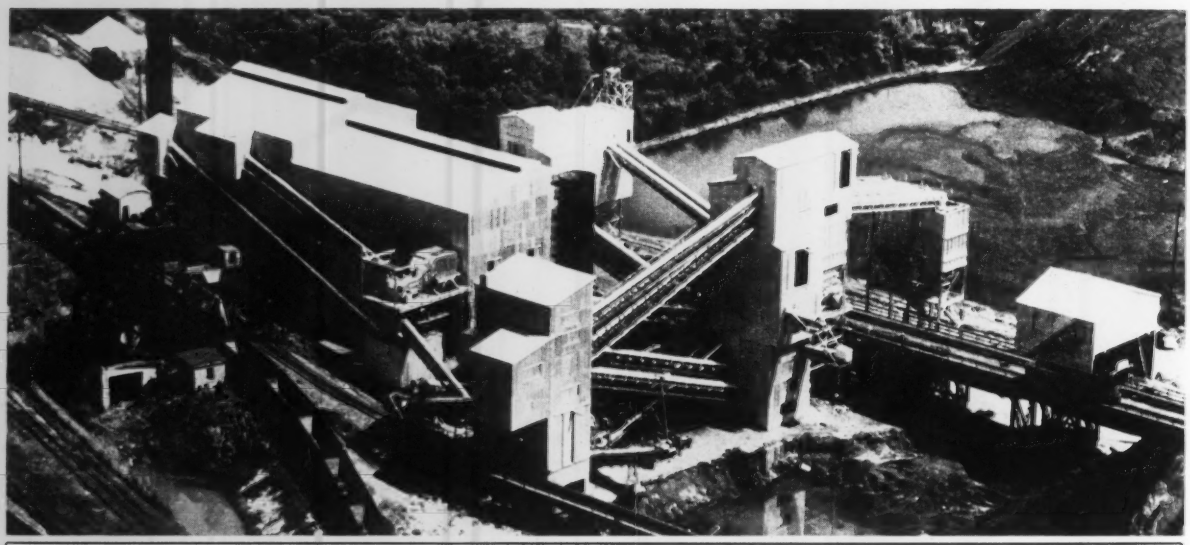
B&W REFRACTORIES PRODUCTS: B&W Allmul Firebrick • B&W 80 Firebrick B&W Junior Firebrick • B&W Insulating Firebrick • B&W Refractory Castables, Plastics and Mortars B&W Silicon Carbide • B&W Ramming Mixes • B&W Kaowool

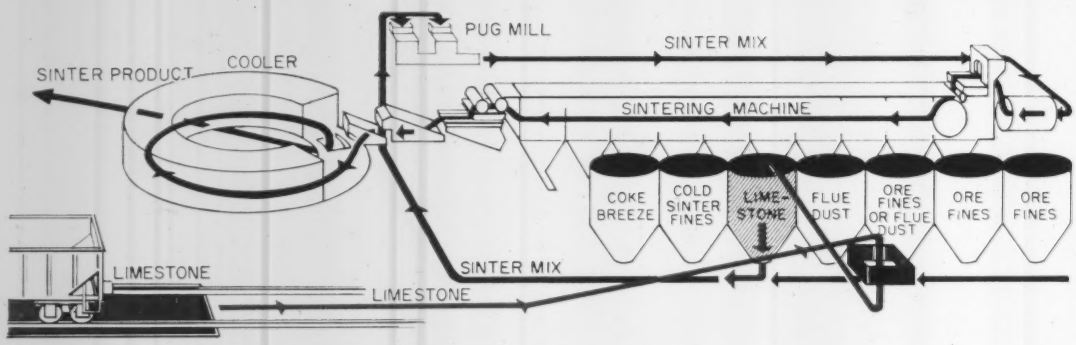
BABCOCK & WILCOX

THE BABCOCK & WILCOX CO. REFRACTORIES DIVISION

GENERAL OFFICES: 161 EAST 42nd ST., NEW YORK 17, N.Y.

WORKS: AUGUSTA, GA.





Colored areas show where equipment handles limestone to make sinter self-fluxing. Such a setup is used in a sinter plant (top) built at Ashland, Ky., by Dravo Corp., Pittsburgh, for Armco Steel Corp.

Self-Fluxing Sinter: Boon for Equipment

Needed are machines to unload, convey, and store fine limestone at steel company sinter plants; and crushing, screening, grinding, and drying equipment at quarries

SELF-FLUXING SINTER has captured the imagination of two important segments of the metalworking industry.

To steelmakers, it holds the promise of lowering iron costs. (Iron production is increased; coke consumption is reduced.)

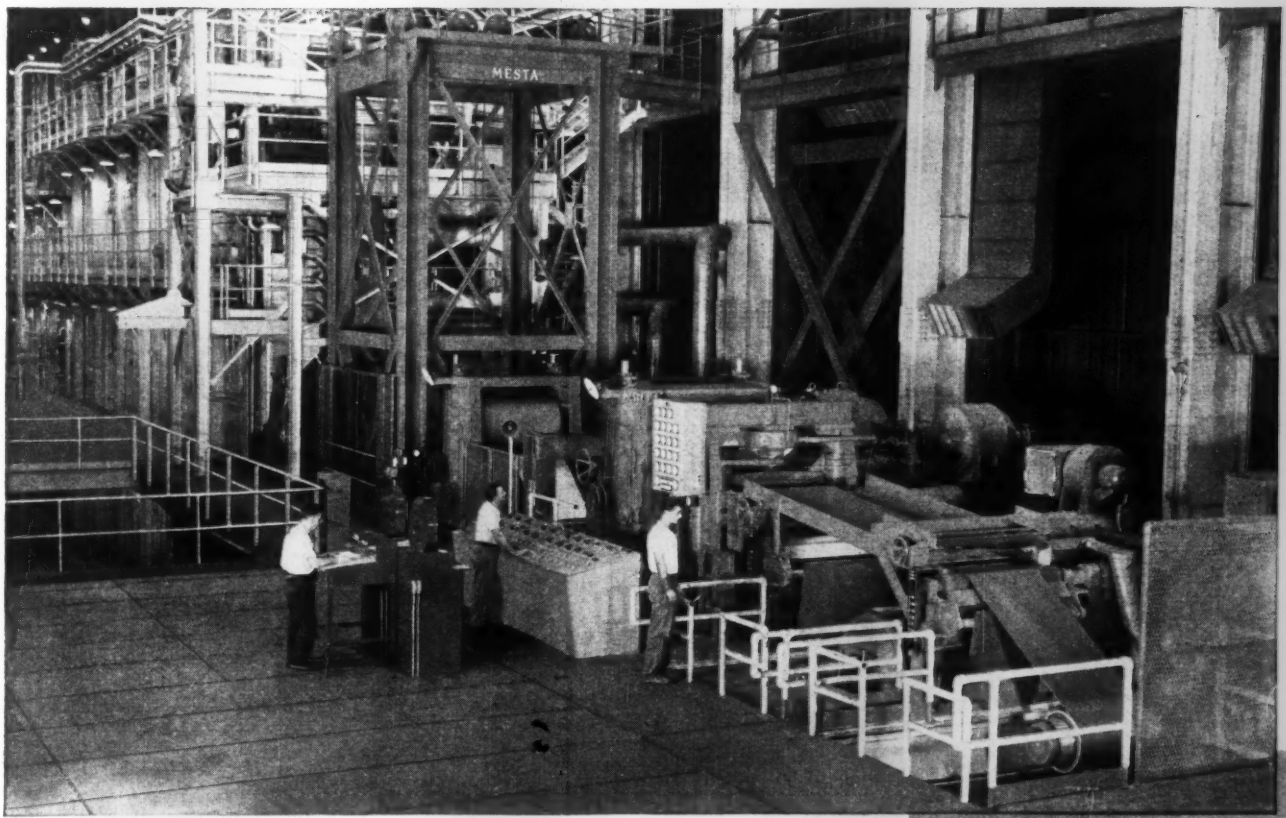
To makers of mill equipment, it means the generation of new markets through a change in technology. (By 1960, the annual sintering capacity in the U. S. will be at least 60 million tons.)

• **What It Is**—Sinter (a manmade feed for blast furnaces) is made self-fluxing by adding limestone fines to raw materials that go into the mixture. The finely ground material (⅛ in. or less in diameter, vs. the 2 to 5 in. chunks conventionally used in blast furnaces) becomes an integral part of the sinter. From 8 to 15 per cent limestone is usually needed to make sinter self-fluxing. The exact amount is governed by the type of ore used.

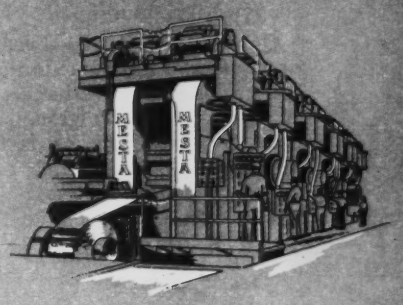
• **Impact So Far** — Every major

CLEANING AND ANNEALING LINES

Designed and Built by **MESTA**



MESTA 2000 FPM Continuous Cleaning and Annealing Line for Steel Strip in Tin Plate Gauges with Pay-Off Reels, Mash Welder and Tension Reels in Operation at Weirton Steel Company, Division of National Steel Corporation.



Designers and Builders of Complete Steel Plants

MESTA MACHINE COMPANY

PITTSBURGH, PENNSYLVANIA

steel producer with blast furnaces to feed is either using some self-fluxing sinter or is considering the move.

Equipment people are already cashing in on the sales potential of the new technique. Almost all the major steel producers have new sintering plants or are building them.

The switch to self-fluxing sinter creates a need for equipment to unload, convey, and store fine limestone at steel company sinter plants. Stone quarries need crushing, screening, grinding, and drying equipment. (Drying equipment is used in winter to lower the moisture content of the limestone to prevent it from freezing.)

Most of the sinter plants under construction and those recently completed have equipment to handle the fine limestone, and in most cases, it can be added to present sinter plants—one company, for example, is spending $600,000 for storage and handling equipment.

• **How Weirton Does It**—One of the newest lines to incorporate equipment to make self-fluxing sinter is at the No. 2 sinter plant of National Steel Corp.'s Weirton Steel Co., Weirton, W. Va. One track hopper is used exclusively to unload crushed limestone from railroad hopper cars. It is equipped with a car haul, car shakeout, four-car thaw area, and a double cone bin (capacity, 85 tons). Each cone on the limestone hopper feeds a 60 cu-ft skip bucket which dumps into a 400-ton concrete silo. It has a 70 degree steel cone wrapped with steam coils for all-weather operation.

A vibrating feeder under the silo feeds two short belts that join the limestone system with the main miscellaneous material system. At the junction point of the two systems, transfer from one to the other will normally be done by chute arrangement, although an impacter is located there for use during extremely cold weather to break frozen lumps of limestone fines.

• **Quarries Get Ready**—Every major supplier of flux stone to the iron and steel industry is either prepared to supply the finely ground limestone or is studying needs for it. An Ohio firm, for example, has installed machinery to fine grind and size limestone and facilities to dry it at its quarry.

Equipping a quarry can cost $500,000 or more, depending on the size of the quarry operation and the extent to which it goes into the production of limestone for sinter.

It is preferable to ship the material in covered hopper cars or trucks so that it can be protected from weather and moisture—although open hoppers can be utilized.

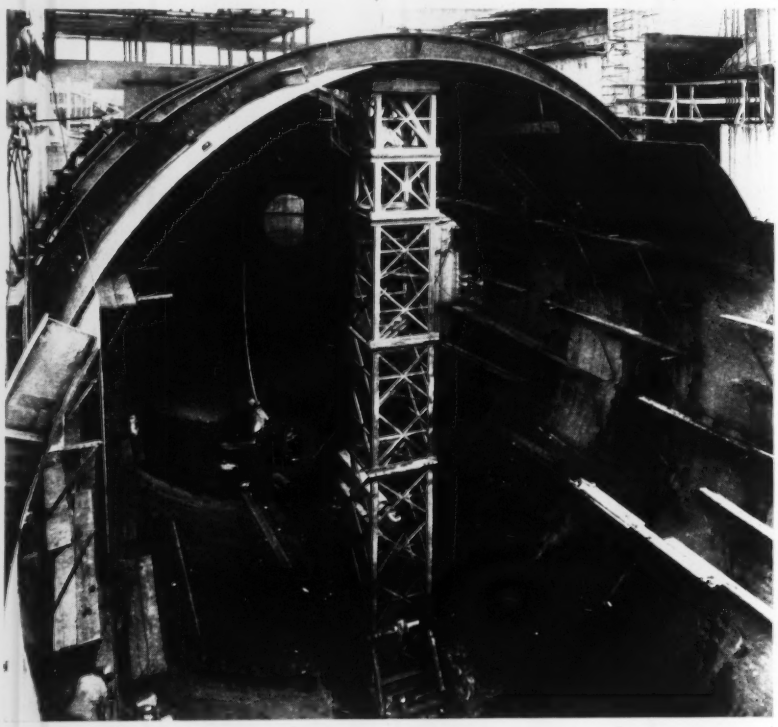
• **Role of Limestone**—Sinter is self-fluxing when it contains enough limestone to counteract the acids in the sinter's principal raw material, iron ore. If limestone isn't added to sinter as it is being mixed, it has to be added to the blast furnace.

Before limestone can become effective, it must be heated to convert its calcium carbonate ($CaCO_3$) content into calcium oxide (CaO) and drive off carbon dioxide (CO_2). Use of the blast furnace to do this requires blast furnace coke, a high quality fuel. By achieving the calcination on a sinter line, coke breeze, a less costly fuel, is used.

• **International Interest** — Other countries have been working with self-fluxing sinter. Russian practice, for example, was investigated this summer when a 19-man delegation of American steelmen (including STEEL's editor-in-chief, Irwin H. Such) visited that country.

J. S. McMahan, superintendent of blast-furnaces, Steel Co. of Canada Ltd., Hamilton, Ont., is an authority on the subject. His experiments, in early 1956, were made with dolomite, rather than limestone. He used dolomite because it was readily available.

Mr. McMahan used dolomite fines of minus $\frac{1}{8}$ in. He found that sinter mixture which was 18 per cent dolomite fines was self-fluxing. The mixture increased iron output by 8.5 per cent and reduced coke consumption by 6.5 per cent. Furnace performance was satisfactory. The number of offgrade casts and variations of iron analysis were reduced substantially.



THIS AUXILIARY BOILER CONTAINER at the Shippingport (Pa.) atomic power station will be used to transfer heat from an atomic reactor. Built by Pittsburgh-Des Moines Steel Co., Pittsburgh, the all-welded tank is 147 ft long, 50 ft wide, and has walls 1¼ in. thick. Welds are made with 3/16-in., Lincoln Fleetweld 5 electrodes

IT PAYS TO STANDARDIZE ON **STANSCREW**

Stanscrew service helps insure quality for new Tuthill pump

Marvin Williams, Works Manager, Tuthill Pump Company, says: "Dependable, precision-built fasteners are an essential ingredient of the quality we build into Tuthill Pumps.

"Therefore, when we designed our new series of high pressure Powermax pumps, we had our distributor arrange for a visit from Stanscrew's fastener specialist. The socket head cap screws he recommended for this demanding application met the stringent standards we have established. And because of our years of experience with Stanscrew, we know we can count on precise product uniformity and fast service."

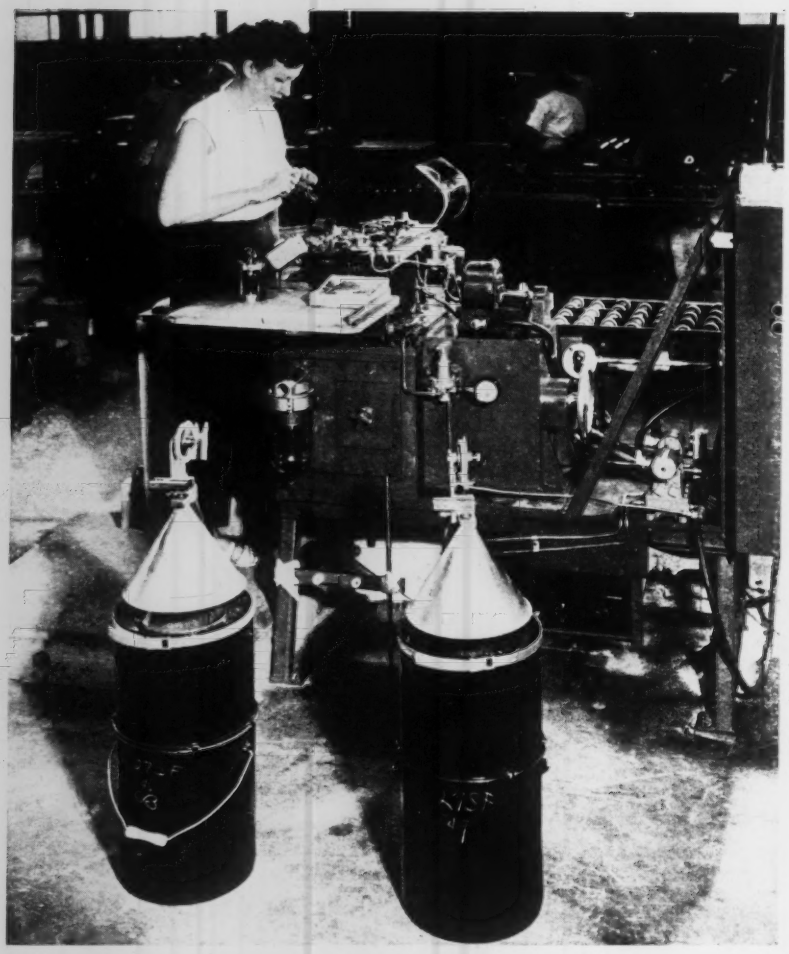
Hundreds of other leading companies in American industry have also learned that it pays to standardize on Stanscrew. For Stanscrew offers a comprehensive line of over 4,000 different types and sizes of standard fasteners . . . including a complete selection of socket, set, and cap screws. These are produced in three modern plants by fastener specialists with over 85 years of specialized experience. All 4,000 items are always in stock . . . quickly available.

When you have a fastener problem, call your Stanscrew distributor. He will arrange for a prompt visit from the Stanscrew fastener specialist. The specific recommendations he will make can often mean important savings.

STANSCREW FASTENERS

CHICAGO | THE CHICAGO SCREW COMPANY, BELLWOOD, ILLINOIS
HMS | HARTFORD MACHINE SCREW COMPANY, HARTFORD, CONNECTICUT
WESTERN | THE WESTERN AUTOMATIC MACHINE SCREW COMPANY, ELYRIA, OHIO

STANDARD SCREW COMPANY 2701 Washington Boulevard, Bellwood, Illinois



Winding machine production rates are increased by the pails' capacity

Pails Cut Handling Costs

Using them for wire has reduced expenses in production of electric motors. Most important factor: They hold ten times more than conventional spools

BY USING magnet wire in special steel pails instead of spools, Fasco Industries Inc., Rochester, N. Y., has cut thousands of dollars from its annual manufacturing costs. (The wire goes into field windings for fractional horsepower motors.) Estimated annual savings in wire handling costs: $15,000 to $20,000.

The advance was made possible by the development of filling methods and of accessory equipment for removing the wire at high speeds—without damage or entanglement.

The most important feature: The pails holds ten times more wire (100 lb of 25 to 31 gage) than a spool. Two advantages result:

1. Pails are replaced only one-tenth as often as spools, saving on handling and machine and operator downtime.

2. Stator rejects are reduced more than 90 per cent. When wire runs out during the winding of a stator, it is rejected. Normally, when one supply runs out (up to six are used), all are replaced to keep run-outs together.

• **Other Benefits**—The discardable Jal-Pak pails were developed by Jones & Laughlin Steel Corp.'s Container Div., New York. The elimination of handling returnable spools saves Fasco $1500 to $2500 annually in bookkeeping costs.

Wire is removed from the pails at speeds up to 2700 fpm in the manufacture of skeins for multiple speed motors. For small fractional horsepower motors, the speed is 300 to 450 fpm.

One-Step Reduction Process Developed To Trim Costs

THE electrothermal process for single-step reduction of metallic oxides promises relatively low cost production of metals and alloys which are now available only at high cost.

It is applicable to such metals as columbium, tantalum, boron, tungsten, vanadium, and titanium.

Work on the process will be done by Hydrometals Inc. (formerly Illinois Zinc Co.), New York, which has acquired licensing rights from Electro-Thermal Industries Inc., developers of the process.

• **How It Works**—Materials to be processed are placed in a closed chamber and subjected to temperatures as high as 5000° F and pressures up to 1 million psi. A low voltage electrical charge sets off an intense electrothermal reaction which results in an almost instantaneous reduction of ores to the metallic state, or direct synthesis of combined elements.

A significant feature of the process is its low unit cost. Since the key equipment is readily available hydraulic presses, tooling and setup is relatively simple and initial capital investment is at a minimum.

• **Will License**—Hydrometals' two-phase marketing plan calls for granting of sublicenses for use of the process, and for establishing its own facilities to make certain selected metals and alloys.

WHO FORGES THE TOUGH ONES?
and dynamic balances them, too?

To further National Forge's reputation for producing precise forgings, we've installed one of the largest, most accurate dynamic balancing machines in use. Our American-Trebel has a 33,000-pound, 60-foot capacity.

Pictured on the machine is a 42 ft. propeller shaft that has been forged, machined, and hollow bored—all operations done in our National Forge plant. NFO specialists are shown balancing this 15,500 lb. shaft to within 730 ounce-inches in two planes.

If you want one responsible source to produce and control the quality of your forgings . . . from melting and forging the steel through machining and dynamic balancing . . . call National Forge. Let us quote on your next job—and *prove* "who forges and dynamic balances the tough ones . . . best!"

NATIONAL FORGE & ORDNANCE COMPANY
IRVINE, WARREN COUNTY, PA.

For information on the "tough" ones and the machinery that makes them best, write for Bulletin NFO3.

Suction fan draws oxide gas away from operator forging hot molybdenum into rings at Steel Improvement & Forge Co., Cleveland

How To Forge Molybdenum

The exceptional high temperature strength of the metal makes it a valuable aircraft and missile material. With a few exceptions, it can be forged like steel

A CLOUD of vapor shrouds the part. The operator can't see the work. Any vapor that touches his skin causes irritation. It contaminates the equipment.

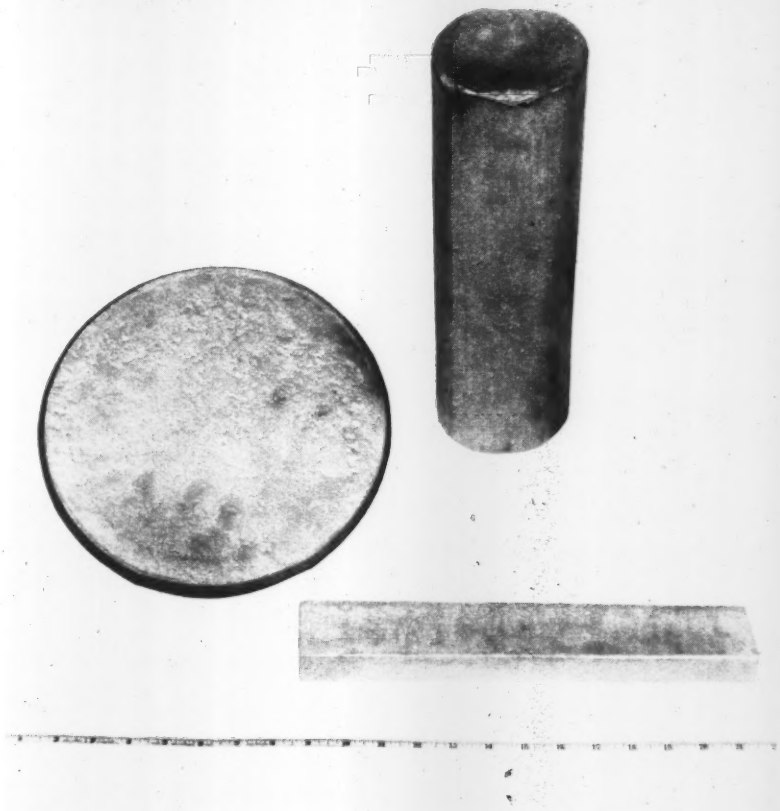
That's one of the difficulties of forging molybdenum. It is being solved along with the problems of controlled plastic flow at Steel Improvement & Forge Co., Cleveland.

• **First Problem**—High impact velocities are needed to begin plastic flow. Once it is started, the metal must be kept moving. Sharp, light, interrupted blows will result in cold work stressing of the surface and cause cracking.

Fundamentally, the metal is satisfactory as a forging material. It exhibits flow tendencies similar to steel (it will flow sideways and fill bosses and cavities). Remedies are largely a matter of technique.

• **Second Problem** — Oxidation causes a lot of trouble. Molybdenum trioxide powder builds up on clothing and the exposed portions of the body. It clogs the nasal passages, inducing coughing and burning. Also the coating deposits on tool surfaces, making them slippery.

A simple solution is to use a high speed suction fan which exhausts the cloud. A second meth-



Sintered molybdenum is a recent development. At top right is sintered forging billet; at left and lower right are a pancake and bar that have been forged from a sintered billet

od used at Steel Improvement & Forge: Protective coatings on the billet material. The process holds critical dimensional tolerances, producing forgings which demand positive control of metal movement and volume.

• **Harms Furnace Operation**—The mischievous cloud hampers control of the furnace temperature and creates problems in later operations. Most high temperature forging furnaces operate with radiomatic-type controls or platinum-rhodium couples. A buildup of molybdenum trioxide insulates these measuring devices, causing the furnace to overheat.

Control is assured by holding a reducing atmosphere in the furnace and by regular checks with an optical pyrometer during the processing cycle.

After long runs of molybdenum, the furnaces become saturated with the trioxide, causing oxidation of products processed later.

• **Experience Shows Trend** — In general, contaminated furnaces have the following effects:

1. Violent oxidation with alloys that contain over 3 per cent molybdenum. Example: Forgings of 16-25-6 (6 per cent Mo) exhibit severe spalling and oxidation.

2. Rapid oxidation with most 300 and 400 series stainless, 4130, and Hastelloy C.

3. Slight oxidation increase with high chromium, high nickel alloys. The chrome and nickel act as natural inhibitors.

4. No noticeable oxidation increase with molybdenum-free metals (such as Inconel X).

The rate of attack on susceptible materials as a result of molybdenum contamination is pronounced in controlled atmosphere furnaces where there is relatively low circulation; and under reducing atmosphere conditions, freak results showing carburization with catastrophic oxidation may occur. Little difficulty is experienced with large forging furnaces which are generally open at one end and have excellent circulation.

• **A Challenge**—Lack of sensitive testing equipment is an impediment to the development of adequate methods for processing molybdenum. Ultrasonic contact scan methods are not suitable and conventional immersion sonic inspection equipment can detect only gross defects. Normal direct beam entrance is blanked out so that more than 50 per cent back reflection is seldom obtained.

New techniques developed by the General Inspection Laboratories of Bell, Calif. (with the help of Aerojet-General Corp. and Climax Molybdenum Corp.) have shown some promise. The method uses both the shear wave and longitudinal wave techniques.

The apparatus has a ¾ in. lithi-

What Molybdenum Offers

High melting point: 4730° F.

High modulus of elasticity: 80° F—45.5 x 10^6, 1500° F—40.0 x 10^6, 2500° F—35.0 x 10^6.

High creep and rupture stress, especially at high temperatures (over 1600° F).

High tensile strength at high temperatures: Rated better than any other high temperature material available in production quantities.

Insensitive to thermal shock: It's the result of a combination of high thermal conductivity, low specific heat, and low expansivity.

High resistance to abrasive erosion by hot gases when coated.

Steps in forging a molybdenum turbine bucket. Top to bottom: Upsetting, busting, blocking, and finish forging

um sulfate crystal of 5 megacycles frequency. The operating frequency for this crystal is 2.25 megacycles for both longitudinal and shear wave testing. While procedures have not been perfected, they have located known defects which normal methods could not detect.

Other methods of quality control are being investigated. These include ultraviolet particle inspection (zyglo testing) for finding tight ruptures and porosity, and x-ray techniques (which are effective up to 1-in. penetration).

• **Applications**—Two proved uses for arc-cast molybdenum forgings are missile components (particularly in the heat affected end of the guidance section) and turbine buckets and wheels for jet engines. Special coatings give the parts oxidation resistance.

In the first nine months of this year, Steel Improvement & Forge has forged about 75,000 lb of the metal, more than all the molybdenum the industry produced in 1956. The company started work with the material in 1950. It developed precision forged turbine buckets in 1954 in a joint program with Climax Molybdenum Co., New York, and Westinghouse Electric Corp., Pittsburgh. Today, it forges parts weighing up to 340 lb.

• **Sintered Billets**—A recent development is the use of sintered molybdenum for the initial billet. A variety of forged components has been shaped. The forging operation gives the sintered material 100 per cent density and excellent ductility. Physical strength compares favorably with arc-cast molybdenum products.

The yield strength (offset method) of a 3⅝ by 12 in. forged part was 98,000 psi. Its ultimate tensile strength was 107,250 psi.

James J. Russ, technical director of Steel Improvement & Forge, believes that development of the arc-cast and powder metallurgy fields will lead to new alloys with higher recrystallization temperatures. This will increase the temperature potential of molybdenum.

Retainers Improved

Reduction in oil-mass shift is assured by sintered nylon parts; aid in making guidance systems

NYSORB ball retainers provide improved lubrication for rotor bearings in internal guidance systems, and reduce oil-mass shift that causes navigational errors.

In tests, bearings with these retainers have operated without loss of performance for more than 5000 hours under severe preload and speed. Those with conventional retainers had an effective operating cycle of less than 200 hours.

The material uniformly retains 20 to 25 per cent of its own weight of oil under acceleration of over 800 g, and absorbs 10 to 20 times as much oil as conventional units.

• **Shift Minimized**—Since the lubricant is distributed evenly throughout the structure, there is little oil-mass shift to unbalance delicate guidance mechanisms.

Developed by Barden Corp., Danbury, Conn., the retainers enable gyros to achieve the life and precision performance demanded. They are sintered from finely divided nylon powder which is impregnated with an instrument oil under vacuum.

New View on Fatigue

Resistance to fatigue cracking—failure of a metal after continued flexing—is no less at the edges than on the flat surfaces of a metal specimen. This new approach to fatigue cracks and where they start was taken by the National Bureau of Standards in work for the National Advisory Committee for Aeronautics.

Initiation of fatigue cracks, first sign of metal failure, is important to design engineers.

Tests by the NBS show that differences in stress patterns, rather than lower resistance to cracking, cause fatigue cracks to start at the edge of a piece of metal. Specimens designed especially for the tests permitted direct comparison of fatigue strengths on flat surfaces with those occurring at the edges of the material.

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"This is for sure . . . the brains of my key men are my biggest business asset."

Almost every company has one or more key men who are responsible for its growth and continuing success. If death takes one of these men, the company stands to lose money . . . at least until a replacement can be found and trained.

You can avoid such a loss through Ætna Life's Key Man Insurance Plan. This plan provides the ideal method of protecting the *living value* of the important men in your business. It gives you the money you will need . . . *when* you need it . . . in the period of adjustment and replacement.

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Gentlemen:

Please send me a copy of your new business life insurance booklet "Will This Man Take Your Business With Him When He Dies?"

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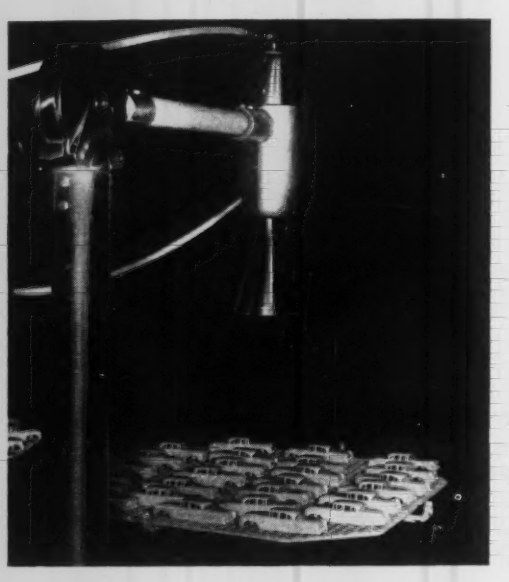
tootsietoys

are painted by the millions with

RANSBURG NO. 2 PROCESS



Miniature automobile bodies of the tootsietoy line are efficiently and uniformly painted as trays of cars pass below one of the four Ransburg No. 2 Process atomizing bells.

QUALITY OF THE FINISH IS IMPROVED AND PAINT COSTS ARE CUT 65% WITH

Electrostatic Spray Painting

Dowst Manufacturing Co., Chicago, are sticklers for quality in the production of tootsietoys which are turned out at the rate of 25 million a year.

That's one reason they changed from hand spray to Ransburg Electrostatic Spray Painting.

RESULTS? Rejects are cut from as much as 5% to about 1%, for they're getting a more uniform, higher quality coating on all parts.

Colors are changed easily, and paint mileage is stepped up substantially. For instance, on one toy item, a gallon of paint coated only 1800 units by hand spray. Now, with Ransburg No. 2 Process, they paint 5500 pieces per gallon. That's because of the unmatched efficiency of Ransburg No. 2 Process.

NO REASON WHY YOU CAN'T DO IT, TOO!

Whatever your product—whether it's large or small—we'd like to show you what RANSBURG ELECTROSTATIC PROCESSES can do for you in YOUR finishing department. Write for our No. 2 Process brochure which shows numerous production line examples of electrostatic spray painting on a wide variety of products.

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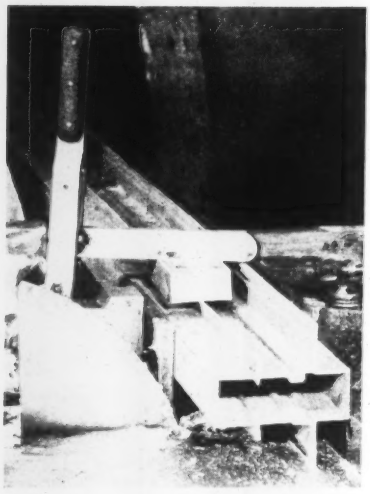


CARBIDE TIPPED SAW
. . . cuts complex extrusions

Saws Are Rugged

Longer life, less resharpening increase production, cut cost in fabricating tough bronze

COMPLEX extrusions in tough architectural bronze mean shorter life for saw blades. Frequent resharpening, replacement of broken teeth, and the need for deburring after sawing increase costs in bronze fabrication.

Cost reduction is possible through use of cemented carbide tipped saws.

Three Carboloy cemented carbide tipped saws have made more than 55,000 cuts through tough 85-15 architectural bronze without resharpening at Flour City Ornamental Iron Co., Minneapolis. Plant Superintendent John F. Svoboda says this is an increase of 70 to 1 in between-grind life over conventional saws.

The saws, made by Lemmon & Snoap Co., Grand Rapids, Mich., are solid discs with close-spaced teeth and no gullet. Saws 18, 16, and 10 in. in diameter are run at 3400, 3400, and 3000 rpm, respectively; after 14,000 cuts with the 10-in. saw and 21,000 cuts each for the larger ones, only the 10-in. needed resharpening.

Bronze extrusions of simple and complex cross sections can be cut with no subsequent deburring.

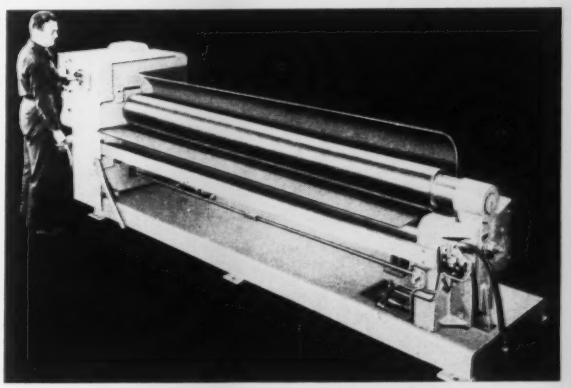
Plate Bending Rolls Have Instant Pushbutton Control

Finger-tip controls facilitate operation of these 9 and 10 in. diameter plate bending rolls. They quickly produce commercially true cylinders of metal plate up to 3/4 in. thick.

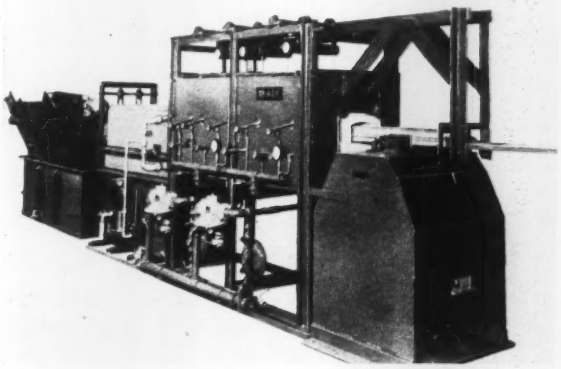
Complete, instant control over forward and reverse rotation is provided by a brake-type motor, momentary contact pushbuttons, and oversize magnetic contactors.

The brake stops the rolls instantly on release of buttons, prevents drifting, and provides close control for inching. Rolls deliver full torque immediately.

A heavy duty, worm gear drive runs silently in a bath of oil; all gears are enclosed. Flat spots in sheets of any thickness are virtually eliminated. *Write*: Niagara Machine & Tool Works, 683 Northland Ave., Buffalo 11, N. Y. *Phone*: Taylor 4070



Hearth Furnaces Have Water-Jacketed Cooling Extention



Bright annealing and bright hardening of small stainless steel parts at temperatures to 1900° F can be done in these reciprocating furnaces. Model No. 264 (shown) can handle about 100 lb of stainless parts an hour.

The principle of operation consists of imparting a forward movement to the work and interrupting it suddenly, causing the work to advance by momentum.

An enclosed alloy muffle has a purging, heating, and water-jacketed cooling section, and seals into an automatic conveyorized oil tank.

The muffle permits maintenance of dew points as low as −90° F, and its full seal construction insures complete atmosphere uniformity throughout the cycle. *Write*: American Gas Furnace Co., Elizabeth B, N. J. *Phone*: Adams 2-0017

Device Orients Parts Difficult To Handle

This packaged roll orientator is an aid to the feeding of headed or slightly tapered parts.

It aligns 100 per cent of the parts fed without rejects, regardless of position at discharge.

The unit can also be used to inspect parts by dropping those undersized.

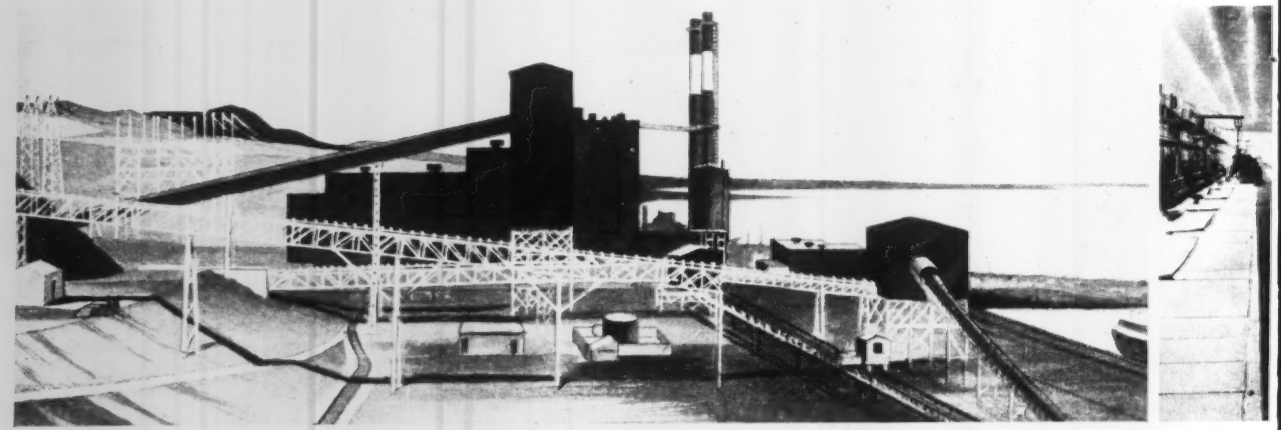
Equipped with a photoelectronic control, the feeder supply remains constant without overloading.. It can be used for various shaped parts that will hang vertically and it is extremely adaptable for feeding fragile ones without scratching or breaking them.

The unit can easily be adjusted to handle various sizes, and can be adapted to almost any delivery rate. *Write*: Automation Devices Inc., 3125 Brandes St., Erie, Pa. *Phone*: 4-6329

Announcing:

A new Anaconda subsidiary offering a half-century and a billion dollars' worth of experience in design and engineering for industrial construction

Anaconda-Jurden Associates, Inc., formerly Anaconda's Engineering Department, now offers the complete services of its experienced staff to industry generally.

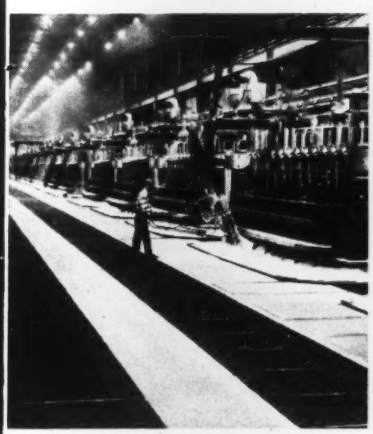


ENGINEERED BY ANACONDA: Power Plant for Erie Mining Company's Taconite Project at Hoyt Lakes, Minnesota.

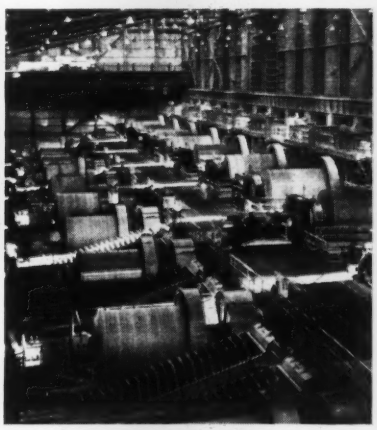
ENGINEERED BY ANACONDA: Phelps Dodge Copper Reduction Works, Morenci, Arizona.

ENGINEERED BY ANACONDA: Integrated Brass Mill, The American Brass Company, Los Angeles, California.

ENGINEERED BY ANACONDA: Uranium Processing Plant of The Anaconda Company, Grants, New Mexico.



ENGINEERED BY ANACONDA: Reduction Plant, Anaconda Aluminum Company, Columbia Falls, Montana.



ENGINEERED BY ANACONDA: Concentrator Grinding Bay, Chile Exploration Company, Chiquicamata, Chile.

For more than fifty years, Anaconda has been in the business of designing and engineering some of the largest metallurgical and industrial plants in the Western Hemisphere—over a billion dollars' worth since World War II.

Anaconda's engineering department has not only built plants for the parent company and its many subsidiaries, but for other companies as well. Projects have included the design of the plant proper and such adjuncts as power plants, transmission lines, complete townsites, bridges, road systems, warehouses, offices, laboratories, water supply and sewage disposal systems.

This highly experienced engineering staff has now been formed into a new Anaconda subsidiary—Anaconda-Jurden Associates, Inc.—so that its services can be extended more readily to other clients.

Wilbur Jurden, president and chief engineer of the new concern said, "The development of a well-coordinated team of design specialists requires years working together on the attainment of common goals. Ours is a balanced staff of over 200 highly trained engineers eager to accept new challenges in the design, engineering, and construction of any major industrial facility."

The formation of Anaconda-Jurden Associates is another major step in Anaconda's continuing efforts to provide better service and products for American industry.

If you would like to learn more about Anaconda-Jurden Associates, Inc., send for a complimentary copy of our brochure, "Landmarks of Industrial Engineering." Simply write to Anaconda at 25 Broadway, New York 4, N. Y.

58260 A

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Cochran Foil Corporation
Anaconda-Jurden Associates, Inc.

NEW PRODUCTS and equipment

Drive Is Compact

A variable speed caterpillar drive is available for Alvey-Ferguson overhead trolley conveyors. Compact construction holds down headroom requirements.

Mounting the drive sprocket directly on the slow speed shaft of the vertical-type reducer has eliminated the bulky spur gear and pinion.

Floating and fluid drives, and automatic overload cutoffs can be provided. *Write*: Alvey-Ferguson Co., 2886 Disney St., Cincinnati 9, Ohio. *Phone*: Redwood 1-7000

Platform Loads Trucks

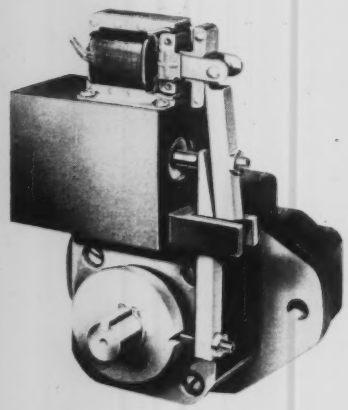
The One-Man truck loader is a portable platform with a capacity of 1 to 3 tons, and a range of up to 20 ft.

It is easily moved on retractable casters. The standard platform is 4 x 4 ft. Other sizes are available.

It is electrically operated with floor or platform control, or both. *Write*: Atlas Industrial Corp., 849 39th St., Brooklyn 32, N. Y. *Phone*: Gedney 5-5520

Drive Indexes Machines

This one-revolution drive is an accurate and automatic intermittent device for indexing motions, feeders, turntables, packaging machinery, and office equipment.

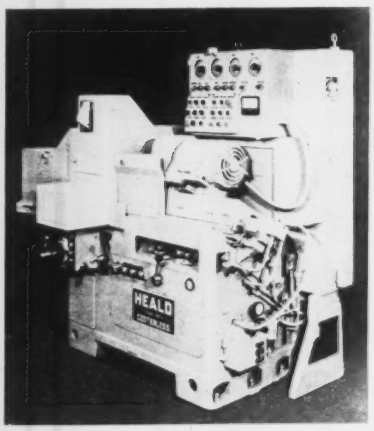


It produces smooth, quiet, instant high torque through a fluid motor and planetary reduction.

The unit may be adapted for manual or mechanical starting, or multirevolution operation. *Write*: Constant-Flo Div., John S. Barnes Corp., 301 S. Walter St., Rockford, Ill. *Phone*: 4-5631

Grinder Table Inclined

Two internal grinders feature Rite Angle design—the table is inclined at 30 degrees to the work. This prevents any tendency to lift when the work is fed into the wheel. It also provides solid wheel backing for heavy pressure, true table tracking, excellent swarf and coolant drainage, and a superior base for mounting wheelheads.

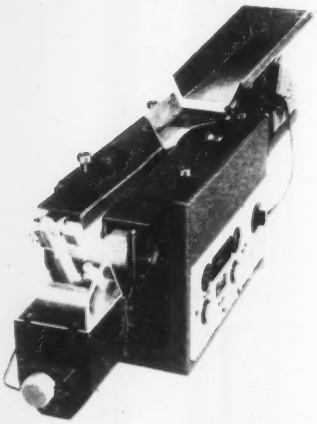


The Model 180A roll-type centerless machine (shown) is designed for small to medium size work that can be rotated on its own OD. The Model 170A chuck-type internal is a high production machine for automatic chucking of small to medium size work that cannot be rotated on its own OD. *Write*: Heald Machine Co., 2 New Bond St., Worcester 6, Mass. *Phone*: Pleasant 5-3191

Small Items Batched

A portable device, the FCB-1, feeds, counts, and batches small items. It can tabulate 300 to 1000 pieces a minute.

Its Decitron Preset Counter keeps accurate tabulation at conveyor speeds of 150 ft a minute. All items are stored in a batcher, and when the desired count is reached (previously selected on the counter) the items are dropped into containers.



The device can be furnished for batch counting in any amount from 1 to 1 million. *Write*: Post Electronics, Beverly, Mass. *Phone*: Walker 2-5006

Degreases Small Parts

The Econo-Sonic is a complete ultrasonic solvent degreasing unit, priced for small shops, that handles small parts requiring special care.

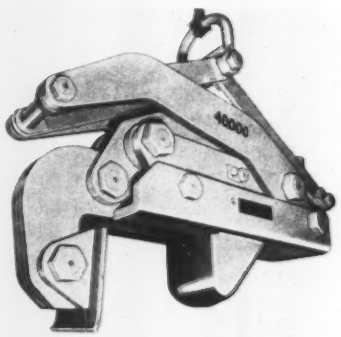
It has boil and rinse chambers, complete circulation and filtration, and a spray lance.

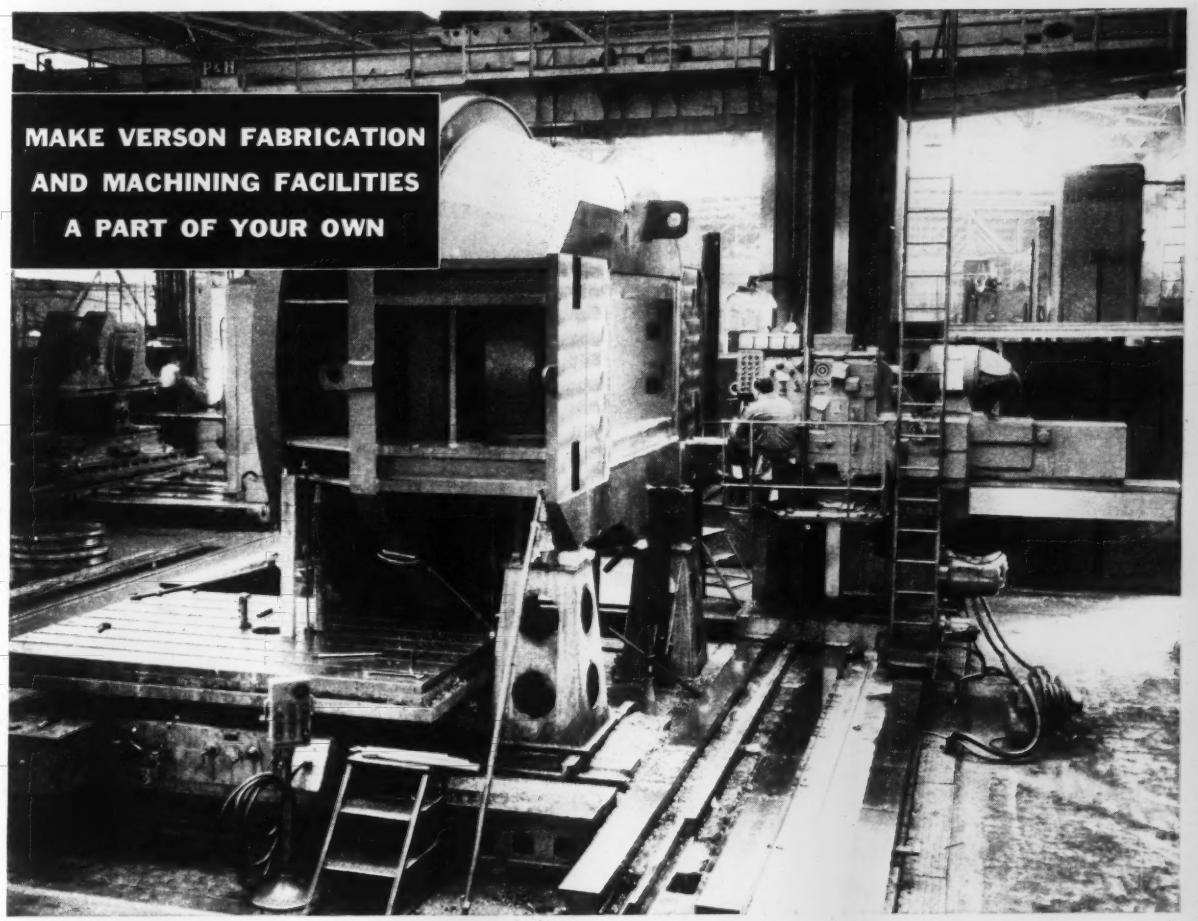
Included is a 110 volt, 600 watt, 400 kc generator. *Write*: Detrex Chemical Industries Inc., Box 501, Detroit 32, Mich. *Phone*: Townsend 8-8600

Tongs Aid Lifting

Cranehand automatic mechanical handling tongs are for use in areas where space is too small for lift truck operation.

They operate from mill or S-hooks, and are designed for large material handling operations such as bars, billets, ingots, pipe, coils,





The Verson Contract Machining Division

offers complete machining and gear cutting services for requirements beyond the capacity of your equipment

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Here you will find huge milling, boring and drilling machines, lathes and planers . . . the most modern facilities available anywhere. For the fabrication and machining of medium and large sized spur or herringbone gears, Verson also offers facilities second to none . . . and Verson methods and techniques get the most out of these facilities.

For precision machining or gear cutting that meets your most rigid specifications, contact Verson, today. For quotations, send an outline and drawings of your requirements.

CONTRACT FABRICATING

The Verson Contract Fabricating Division offers complete, modern facilities for all your steel plate fabricating requirements. For full details, write for Bulletin F-57 . . . or send an outline of your needs.

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A Verson Press for every job from 60 tons up.

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ORIGINATORS AND PIONEERS OF ALLSTEEL STAMPING PRESS CONSTRUCTION

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MECHANICAL AND HYDRAULIC PRESSES AND PRESS BRAKES • TRANSMAT PRESSES • TOOLING • DIE CUSHIONS • VERSON-WHEELON HYDRAULIC PRESSES

structural steel, rails, or storage racks.

An automatic lock opens upon contact with the load without the aid of electric power or mechanical devices. Capacities range from 1000 to 50,000 lb. Maximum opening is 50 in. *Write*: American Forge & Mfg. Co., McKees Rocks, Pa. *Phone*: Spaulding 1-4514

Unit Straps Automatically

Autostrapper machines use oval shaped steel strapping with a high tensile strength. They can be used to reinforce extralarge bales, pallet loads, cases, and cartons.

The equipment twist-ties the strapping to produce a guaranteed

joint strength of up to 900 lb. Conventional round strapping up to 12 gage can be used.

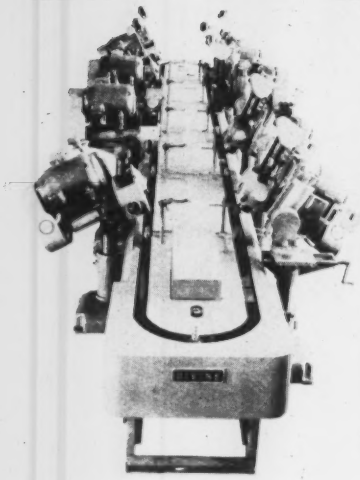
Conveyorized models automatically position the product, initiate the machine cycle, and remove the package. *Write*: Wiretyer Corp., 65 Leliarts Lane, East Paterson, N. J. *Phone*: Swarthmore 7-6180

Conveyor Aids Buffing

An indexing-type circuit conveyor has been produced for use with Type L and Type V polishing and buffing head units on automatic installations.

Welded of heavy structural steel, the unit is sectional to permit expansion or rearrangement. It also facilitates shipping.

The conveyor runs at maximum speed between work stations regardless of the number of indexes per



hour, and speed adjustments are infinitely adjustable throughout their range. *Write*: Divine Bros. Co., Seward Avenue, Utica, N. Y. *Phone*: 4-7174

Compound Cleans Metal

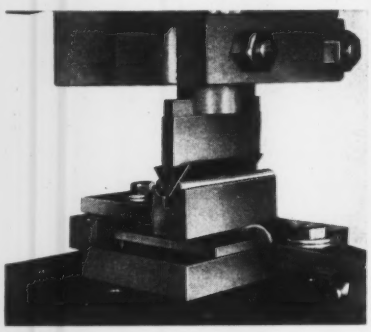
An alkaline material is available to clean ferrous metals and copper alloys. The compound is highly effective for oil and grease removal and uses a minimum of active ingredients.

No films are left after cold or warm rinsing. Operating temperature is 180° F. *Write*: Stratford Chemical Co. Inc., Honey Street, Milford, Conn. *Phone*: Trinity 8-0392

Work Marking Avoided

This female die has roll inserts that eliminate work marking and reduce die setup and changeover time. It can be used in any press brake or punch press.

The Di-Acro Rol-Form dies are particularly useful where polished, painted, or bright metals are being formed.



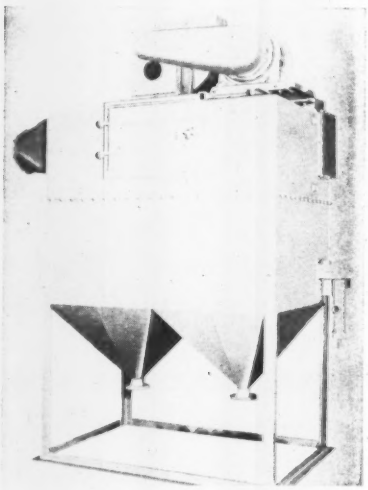
The die block houses two hardened and ground, half-round inserts that roll up and toward the opening in the die block as the male die enters the workpiece.

Up to 12 ft standard lengths can be obtained for press brakes, and shorter sections are available for punch presses. *Write*: O'Neil-Irwin Mfg. Co., 619 Eighth Ave., Lake City, Minn.

Dust Control Increased

Redesigned diffuser elements for a hydroprecipitator-scrubber, dust control unit have increased its efficiency in the trapping of noncondensable and normal dust-type materials (below 5 microns in size).

The scrubber removes low and submicron size dust particles and



fumes in gases exhausted from steel plant blast furnace, open hearth, and sintering operations.

Efficiency up to 99 per cent has been obtained with 90 per cent of the material below 5-micron particle size. *Write*: Johnson-March Corp., Philadelphia 3, Pa. *Phone*: Locust 4-0536

Unit Checks Clearances

Checking the clearances between the ID and OD of mating parts to millionths can be done with the Air-O-Limit 3-Station ID-OD Clearance Comparator.

The device is a combination of two gaging units plus a computing circuit. The output of the gaging units is fed into a computing relay, and the clearance or interfer-

Continuous high production plus precision are built into this CTU cylindrical grinder.

You, too, can have the "Touch of Gold" with a Norton Grinding Machine

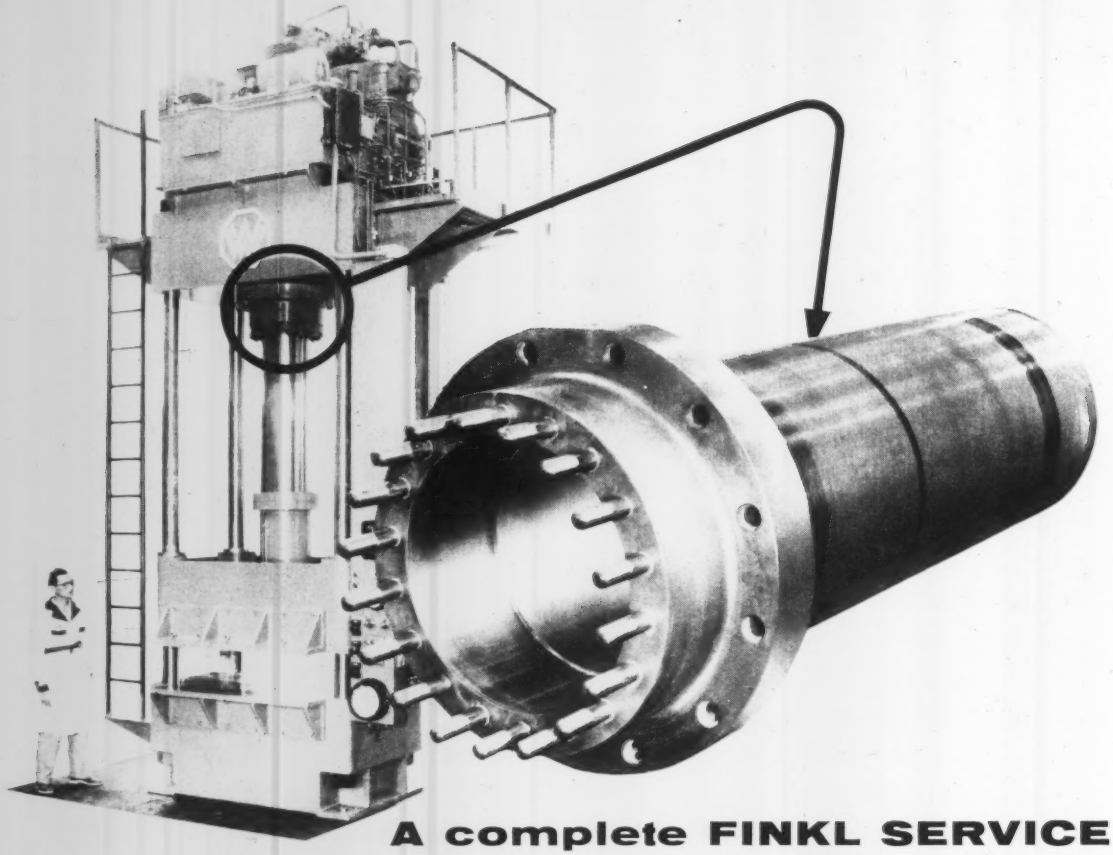
This is one of the most profitable machines industry knows. It is widely used for the demanding tasks of production precision cylindrical grinding. It is a product of Norton Company's ingenuity and knowledge of the great and varied science of grinding . . . one in which Norton has specialized for scores of years . . . a field in which it has become world leader.

You literally have the "Touch of Gold" when you use a Norton Grinder. Its ability to produce faster and with greater precision is added value that creates more wealth . . . helps everybody earn more.

It will pay you to inquire how Norton Grinding Machines and Lappers can give your company the "Touch of Gold." NORTON COMPANY, Worcester 6, Massachusetts.

NORTON
GRINDERS and LAPPERS

Making better products...to make your products better



A complete FINKL SERVICE - FROM BLUEPRINT TO FINISHED PART

Many companies profit from Finkl's complete package service on finished machine parts. Williams-White & Company of Moline, Illinois, manufacturers of heavy machinery, called on Finkl for the forged steel, main cylinder shown above. It is used on a 300 ton plastic molding press employed for pilot molding procedures prior to production molding runs.

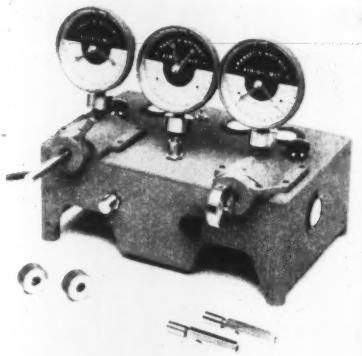
The entire cylinder was handled in our plant. Made of C-1035 steel from our electric furnace melt shop, the part was forged, heat treated, rough and finished machined under one roof. The 17″ bore was ground to $\begin{matrix}+.003''\\-.000''\end{matrix}$. Final dimensions, as delivered and installed, were 6′-1″ long with the main body 22″ in diameter.

With modern equipment and skilled craftsman, we do jobs both larger and smaller than the cylinder shown. The important thing is we do all of them well. Next time you are planning a machine part call a Finkl engineer and learn how you can profit by having it done under one roof.

DIE BLOCKS · FORGINGS · HOT WORK STEELS · ELECTRIC FURNACE STEELS

2011 SOUTHPORT AVE · CHICAGO 14, ILLINOIS

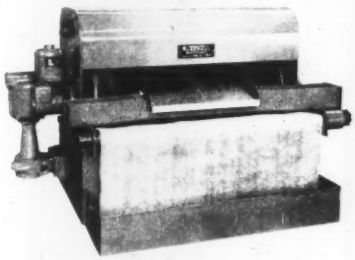
Offices in: DETROIT • CLEVELAND • PITTSBURGH • INDIANAPOLIS • HOUSTON • ALLENTOWN • ST. PAUL
COLORADO SPRINGS • SAN FRANCISCO • SEATTLE • BIRMINGHAM • KANSAS CITY • BOSTON • LOS ANGELES
Warehouses in: CHICAGO • DETROIT • BOSTON • LOS ANGELES



ence between the two parts shows on the indicator. *Write*: Pratt & Whitney Co. Inc., West Hartford 1, Conn. *Phone*: Adams 3-7561

Coolant Filters Improved

Improved operation and life are claimed for Kleenall combination magnetic and fabric coolant filters. They are available in standard sizes and capacities and are adapted to central system installations.



Increased clearance between the filter fabric and distributor provides greater capacity for heavy swarf loads. *Write*: Barnes Drill Co., Rockford, Ill. *Phone*: 4-8661

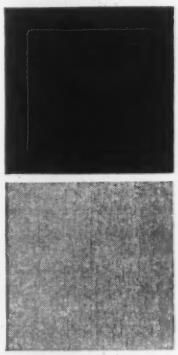
Cools Work in Atmosphere

A laboratory-type box furnace is designed to meet precise requirements for extremely high, automatically controlled temperatures in a protective atmosphere.

The double end, through-type unit can be used for copper and silver brazing, metallic oxide reduction, melting, powdered metal sintering, and bright annealing.

This furnace permits cooling in a protective atmosphere, and has precision automatic temperature control by radiation detector. The heat-

SHOW STOPPER



It's the new Torrington Verti-Slide, the first major innovation in the field of 4-SLIDE equipment in 50 years!

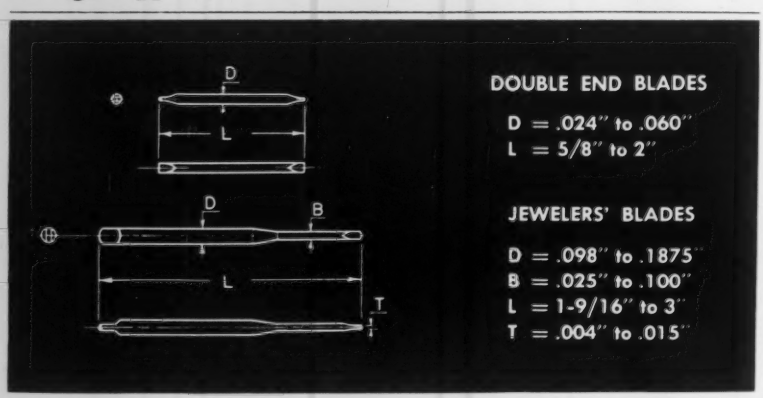
This machine was designed to meet a growing need for greater productivity and profitability in the cost-critical area of wire and strip forming.

Seldom before has a new machine created such immediate and widespread interest. We urge you to get the full story. Write or call today.

THE TORRINGTON MANUFACTURING COMPANY

TORRINGTON, CONNECTICUT • VAN NUYS, CALIFORNIA • OAKVILLE, ONTARIO

NEWS
from Torrington on
SMALL PRECISION METAL PARTS



DOUBLE END BLADES

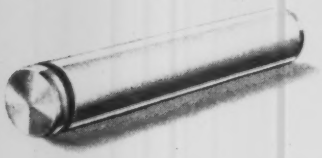
D = .024" to .060"
L = 5/8" to 2"

JEWELERS' BLADES

D = .098" to .1875"
B = .025" to .100"
L = 1-9/16" to 3"
T = .004" to .015"

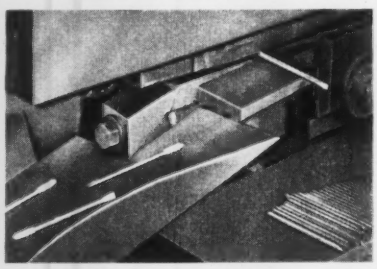
"Custom manufacture" has a special meaning at Torrington, where our Specialties Division produces a tremendous variety of small precision metal parts. For our engineers often help in designing parts for our customers, and as frequently develop special equipment or methods for most efficient production.

For example, one of our current contracts is for jewelers' screwdriver blades. In this case, our engineers decided to swage these parts to give the required high-strength characteristics without stress concentration points and tool marks. Other features of these parts are good dimensional accuracy and closely controlled heat treating for hardness and temper.



In another case, we received a blueprint of a special pinion axle with an accurately cut retaining ring groove at one end. The customer inquired whether this part could be produced at about the same price as a straight cylindrical axle with an uninterrupted OD. The answer was "Yes!" Specialties engineers decided that high-speed cutoff and groove-turning equipment would have to be built to cope with the high volume involved. Special pinion axles have now joined the great number of parts being produced by Torrington Specialties Division.

Whatever the part, whatever the operation—even operations tailored to the part requirements—Torrington's Specialties Division is uniquely equipped to handle your small precision parts contracts. Highly specialized fluting operations, for example, permit volume production to close tolerances. Precision swaging, knurling, forming, milling, drilling are among other operations for which we are fully equipped. Advanced heat treat and statistical quality control methods help provide the quality product you require.



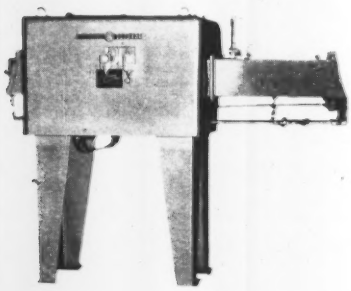
For help with your custom-built small precision metal parts in large quantities, just circle our number on the reply card. Or have your Purchasing Agent call our area salesman, or write direct to:

The Torrington Company, Specialties Division, 900 Field Street, Torrington, Conn.

TORRINGTON SPECIAL METAL PARTS

Makers of Torrington Needle Bearings

NEW PRODUCTS and equipment

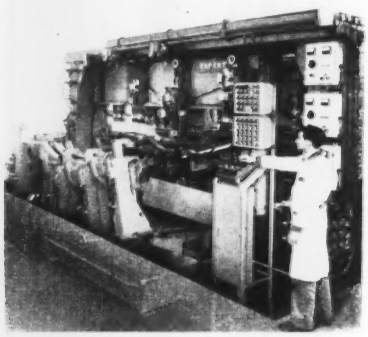


ing chamber is lined with high purity brick suitable for operation up to 3200° F. *Write*: General Electric Co., Schenectady 5, N. Y. *Phone*: Franklin 4-2211

Welds Untrimmed Edges

Metal parts with untrimmed, out of tolerance, straight, or contour weld line edges can be joined in a continuous, automated welding operation.

This magnetic tape tracer system controls self-powered welding heads with a high degree of accuracy.



Present machines use the CO_2 arcwelding process, but the system is equally adaptable to any arcwelding process. *Write*: Expert Welding Machine Div., Expert Die & Tool Co., 17144 Mt. Elliott Ave., Detroit 12, Mich. *Phone*: Twinbrook 1-4327

Steel Cleaned Effectively

Composition No. 190 is a reverse current cleaner that provides high conductivity and surface activity. It is particularly effective in cleaning heavily smutted steel.

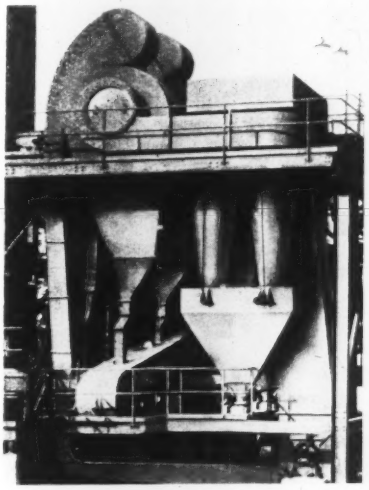
It removes fingerprints, light surface rust, and oxides resulting from spot or seam welding. It may be

used with or without a precleaner, and rinses well in hot or cold water. *Write*: Oakite Products Inc., 19 Rector St., New York 6, N. Y. *Phone*: Whitehall 3-0940

Classifier Is Efficient

A centrifugal classifier system separates dry fines from coarse materials at high efficiency. It has no moving parts, requires little maintenance, and utilizes only 0.04 to 0.5 hp per ton an hour.

The unit extracts from most materials more than 98 per cent of fine particles having diameters smaller than 325 mesh (44 microns)—with no oversize material in the fines.



Sizes to handle from 100 lb to 100 tons of material an hour are available. They are recommended for use in the 400-200 mesh range. *Write*: Buell Engineering Co. Inc., 123 William St., New York, N. Y. *Phone*: Cortland 7-0900

Clutch Slows Press Wear

Air friction clutches and welded steel construction are featured in a line of OBI presses ranging in size from 25 to 200 tons.

Low inertia design of the clutch results in less wear because of the small number of parts to be picked up on engagement. The brake is also air operated and spring set. *Write*: Danly Machine Specialties Inc., 2100 S. Laramie, Chicago 50, Ill. *Phone*: Bishop 2-1800

Scale section in foreground permits weighing coils and sheets enroute to shipment. Adjoining semi-alligator switch provides means of diverting to either of two lines. Part of extensive Logan conveyor system in prominent aluminum mill.

Trimming costs to meet competition? The solution is mostly in your shop. With so much importance on the production end, it's small wonder that management is giving more and more attention to materials handling. Logan Conveyors have been the key to greater savings in time, space and effort for large companies and small for over a half century. Production experts who specify Logan, expect and receive equipment designed for sound day-after-day performance.

Why not see what Logan can do for you? Write for more information or for a call from a qualified engineer.

Write for your copy of the Logan TROLLEY CONVEYOR catalog

LOGAN CO., 535 CABEL ST., LOUISVILLE 6, KY.

Logan Conveyors

NEW literature

Write directly to the company for a copy

Semiautomatic Welder

A brochure sets forth major construction features of a semiautomatic welder. A wide variety of applications is shown. Wall Colmonoy Corp., 19345 John R St., Detroit 3, Mich.

Plastic Steel

Bulletin No. 3 discusses the use of Plastic Steel for maintenance and general repairs. Devcon Corp., Danvers, Mass.

Open Floor Grating

A 16-page catalog describes stair treads and open floor grating for industrial uses. Reliance Steel Products Co., P. O. Box 510, McKeesport, Pa.

Right-Angle Gear Drives

Solutions to a variety of industrial power transmission problems with standardized 90-degree power takeoffs are provided in Catalog IA-58. ANGLgear units serve in place of V-belts or chain-and-sprocket mechanisms. Airborne Accessories Corp., 1414 Chestnut Ave., Hillside 5, N. J.

Gear Reducers

Catalog No. 5802 contains engineering and selection information on the Speed-Master gear reducer line. The reducers are available in a wide range of ratios up to 10,000 hp. Western Gear Corp., P. O. Box 182, Lynwood, Calif.

Cutting Lance

The Oxweld ACL-3 Powder Lance, capable of slicing through metal or concrete of any thickness, is described in Form 1153. Linde Co., division of Union Carbide Corp., 30 E. 42nd St., New York 17, N. Y.

Hydraulic Press

Hydraulic presses from 17½-ton bench size through 30, 50, and 100 ton units are described in Manual SPS. All are powered by the center-hole ram which may be removed for optional use in the shop or on a job site. Owatonna Tool Co., Owatonna, Minn.

Special Lubricant

Bulletin No. 539 describes the use of Non-Fluid oil for shake-outs, vibrating screens, and pneumatic tools and equipment. New York & New Jersey Lubricant Co., 292 Madison Ave., New York 17, N. Y.

OBI Press

A 40-ton OBI press with a steel frame weldment that provides large ram and bed areas and depth of throat for large die sets is described in a bulletin. Sales Service Machine Tool Co., 2363 University Ave., St. Paul 14, Minn.

Circuit Breakers

Bulletin GEA-5915 provides details on the operation and application of AK-2 breakers for circuits up to 600 volts ac and 250 volts dc. General Electric Co., Schenectady 5, N. Y.

Industrial Valves

A condensed version of this company's general catalog lists its complete line of industrial valves. Ohio Injector Co., Wadsworth, Ohio.

Graphite Electrodes

This folder highlights recent developments in graphite electrodes for electric furnaces. It contains a listing of stock threaded electrodes and their nipples. Great Lakes Carbon Corp., 18 E. 48th St., New York 17, N. Y.

Tool Steels

A tool steel stock list, No. 13, includes new steels, increased stock sizes, brand name chart of 13 producers, temperature conversion chart, tables of wire and sheet metal gages, and other engineering data. Uddeholm Co. of America Inc., 155 E. 44th St., New York 17, N. Y.

How To Start Motors

Methods of starting various types of synchronous motors are described in Bulletin GER-1520. Covered are starting under full voltage, part winding, autotransformer, primary resistor, primary reactor, wye-delta, and field excitation. General Electric Co., Schenectady 5, N. Y.

Spent Pickle Liquor

Neutralization of Spent Pickle Liquor discusses each of the many factors over which control can be exercised to keep costs of this expensive process to a minimum. The findings were developed from research sponsored by the American Iron & Steel Institute. Mellon Institute, 4400 Fifth Ave., Pittsburgh 13, Pa.

Special Stainless Steel

Microrold Special Purpose Stainless Steels is a 32-page book that gives detailed information on special purpose stainless physical properties and analysis, corrosion and heat resistance, surface finishes, fabrication, maintenance, and bacteria cleanability. Washington Steel Corp., Washington, Pa.

Alloy Steels

Quick Facts About Alloy Steels (Booklet 415-C) includes nine tables on AISI and SAE specifications for open hearth and electric furnace alloy steels—bars, billets, blooms, and slabs. Subjects covered: What is an alloy steel? Effects of Elements, Grain Size, Heat Treatment, and Determining Depth Hardness. Bethlehem Steel Corp., Bethlehem, Pa.

Phosphating Analysis Kit

A phosphating analysis kit enables metalworking manufacturers to determine if their products are adaptable to phosphating and to its paint adhesion advantages. Turco Products Inc., 6135 S. Central Ave., Los Angeles 1, Calif.

Lubrication Systems

Applications and advantages of the Ram-Pump centralized power lubrication systems are described in Bulletin No. 812. The units provide automatic or semiautomatic lubrication of bearings simultaneously, on single machine units while in operation. Lincoln Engineering Co., 5702-33 Natural Bridge Ave., St. Louis 20, Mo.

Casting Alloys

Metal Specifications and Practices in the United States contains graphs, photomicrographs, and electron micrographs along with the text to show the development and standardization of casting alloys. WaiMet Alloys Co., 1990 Guoin St., Detroit 7, Mich.

Material Handling

How Rapistan equipment solves material handling problems in industry is set forth in a handbook. Sections cover: Gravity, power, live storage, overhead, special use, and industrial conveyors; accessories and casters; wheels; and hand trucks. Rapids-Standard Co. Inc., Grand Rapids, Mich.

Toolroom Shaper

A brochure describes the H-20, an economical, precision toolroom shaper that is guaranteed for an accuracy of ±0.0004 in. for 6 in. Jersey Mfg. Co., 453 Livingston St., Elizabeth 1, N. J.

Buying Alloy Steel

A special eight-point plan that gives added protection to buyers of alloy steel is explained in a booklet. Joseph T. Ryerson & Son Inc., Box 8000-A, Chicago 80, Ill.

Ductile Iron

A catalog on ductile iron describes its broad range of applications and benefits. Hamilton Foundry & Machine Co., 1351 Lincoln Ave., Hamilton, Ohio.

Electroplating Filters

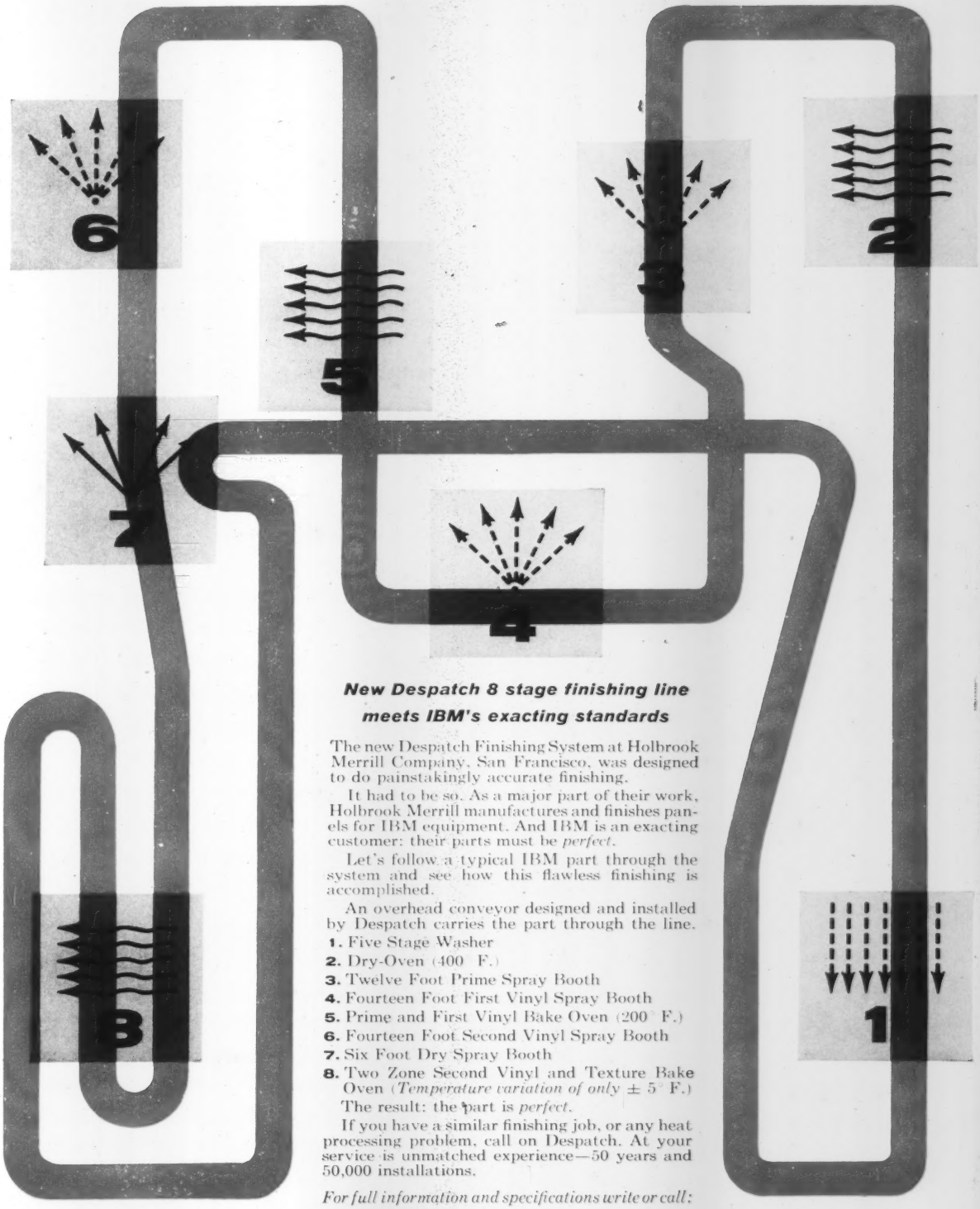
Fulflo filters allow complete solution filtration up to four times in a standard 8-hour day, says Bulletin GEO-508. Commercial Filters Corp., Melrose, Mass.

Helixpoint Drills

A bulletin tells about the production of helixpoint drills on the Steptool Relief Grinding Fixture. It also sharpens core drills, stepdrills, countersinks, and taps. Steptool Corp., 3613 E. Olympic Blvd., Los Angeles 23, Calif.

Drilling Practice

How spiral point drill geometry provides improved precision and economy in drilling operations is shown in a booklet. Cincinnati Lathe & Tool Co., 3207 Disney St., Cincinnati 9, Ohio.



New Despatch 8 stage finishing line meets IBM's exacting standards

The new Despatch Finishing System at Holbrook Merrill Company, San Francisco, was designed to do painstakingly accurate finishing.

It had to be so. As a major part of their work, Holbrook Merrill manufactures and finishes panels for IBM equipment. And IBM is an exacting customer: their parts must be *perfect*.

Let's follow a typical IBM part through the system and see how this flawless finishing is accomplished.

An overhead conveyor designed and installed by Despatch carries the part through the line.

1. Five Stage Washer
2. Dry-Oven (400° F.)
3. Twelve Foot Prime Spray Booth
4. Fourteen Foot First Vinyl Spray Booth
5. Prime and First Vinyl Bake Oven (200° F.)
6. Fourteen Foot Second Vinyl Spray Booth
7. Six Foot Dry Spray Booth
8. Two Zone Second Vinyl and Texture Bake Oven (*Temperature variation of only* ± 5° F.)

The result: the part is *perfect*.

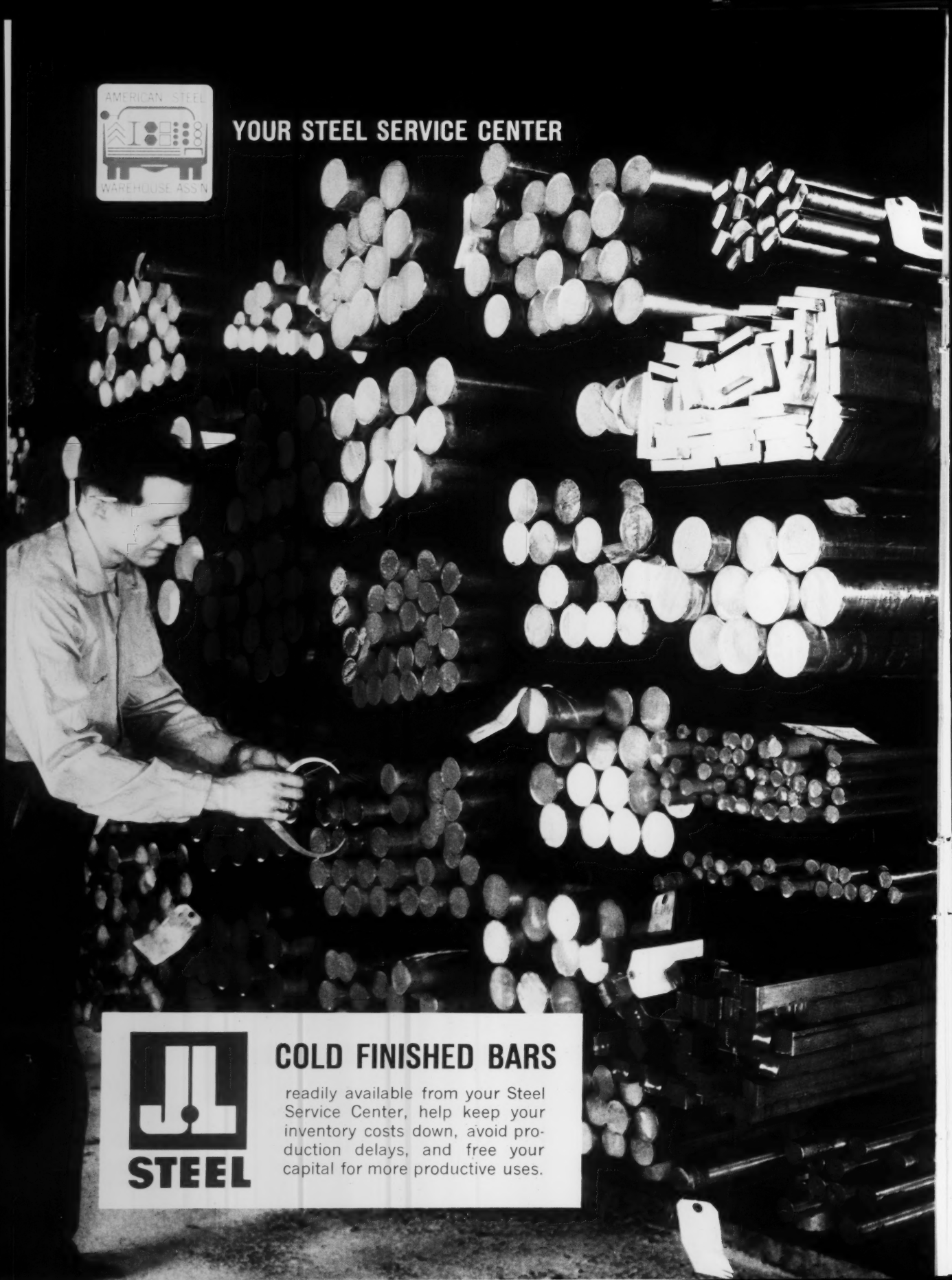
If you have a similar finishing job, or any heat processing problem, call on Despatch. At your service is unmatched experience—50 years and 50,000 installations.

For full information and specifications write or call:

DESPATCH OVEN CO.

DESPATCH OVEN COMPANY

619 S.E. 8th St., Minneapolis 14, Minn., Dept. 12E.


AMERICAN STEEL
WAREHOUSE ASS'N
YOUR STEEL SERVICE CENTER
JL
STEEL
COLD FINISHED BARS
readily available from your Steel Service Center, help keep your inventory costs down, avoid production delays, and free your capital for more productive uses.

Have you learned the BIG LESSON from the recent recession?

It's expensive to tie up capital and space in steel stocks! When orders fall off, your cost of ownership—interest, space rental, maintenance, and insurance—continues.

This kind of expense for cold finished bars can be eliminated—or at least reduced substantially—by taking *planned* advantage of the services of your local Steel Service Center, your nearest distributor stocking steel products.

Virtually every steel buyer thinks of his Steel Service Center in an emergency—and this is fine. But even bigger returns may be realized by taking *planned* advantage of your Steel Service Center for your routine purchases.

Your distributor of cold finished bars has a wide variety of shapes, grades and sizes available for prompt delivery, and specialized cut-to-order service takes only a little longer. Plan to use *his* space for your steel stocks, *his* capital for inventory, *his* equipment, and *his* prompt cut-to-order service and production coordinated deliveries for higher productive efficiency. Many others already do—American Steel Warehouse Association figures reveal that over 14 million tons of steel were handled in this manner in 1957.

Steel Service Centers are a vital segment of America's steel distribution system, and the distributor nearest you stocking cold finished bars can help you reduce the cost of your steel ownership. Call in his representative and get the full story on taking *planned* advantage of the services of his firm and its facilities. And ask him to show you the new ASWA slide film presentation, "George Wilkins Fights Back"; you'll find it both interesting and rewarding.

Jones & Laughlin Steel Corporation, Dept. 562, Three Gateway Center, Pittsburgh 30, Pennsylvania.

MATERIALS HANDLING EQUIPMENT is expensive—as is the skilled labor to operate it—but you can reduce these costs by taking planned advantage of the services and facilities of your nearest distributor of J&L cold finished bars.

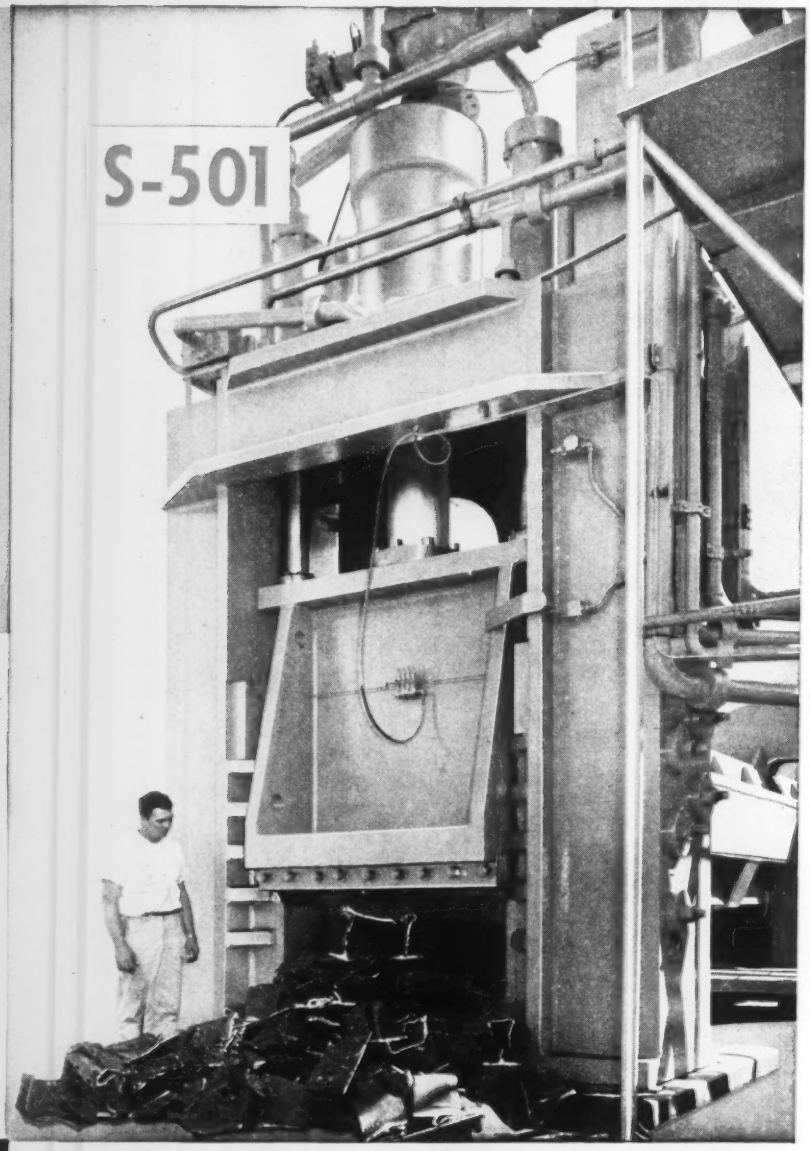
EXACTING QUALITY CONTROL MEASURES assure superior finish, machinability, and uniformity in J&L's cold finished bars. Ask your salesman to show you samples of J&L's improved Bright-Drawn finish, the "new look" in cold drawn bars.

STEEL

Jones & Laughlin Steel Corporation

PITTSBURGH, PENNSYLVANIA

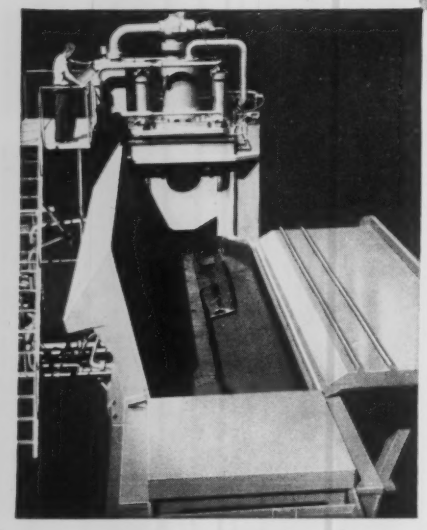
CUTS 200 TONS PLATE SCRAP IN EIGHT HOURS



production is continuous

labor costs 70% lower

The Harris Shear is revolutionary in design. It is the first new development in the scrap industry since the introduction of the Baling Press. Railroad scrap, pipe, farm, industrial, automobile and miscellaneous junk shop scrap work through on a 12 second cycle. A 3 man crew and a crane handle the job in all kinds of weather.



The charging box is 264" x 80" x 30". It has a flat type loading hopper. The cover and charging ram operate like a baler. This means more material under each stroke of the knife.

The Harris Shear brings new profits to Scrap Yards

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Talk with a Man from Harris

Auto Strife Delays Steel Recovery

LOOK for steel production to resume its upward push as soon as the automotive industry hits full stride. Progress was temporarily halted last week as steelmakers adjusted their output to flagging demand. Automotive orders fell short of expectations, reflecting the disruptive effect of labor disputes. In the last two weeks, automakers have assembled about 170,000 cars. During the like period of 1957, they turned out 231,000.

PRODUCTION LEVELS OFF— Reacting to the slowdown in automotive demand, steelmakers held their operations at 75 per cent of capacity last week. Production was about 2,024,000 tons of steel for ingots and castings. October's output (8,750,000 tons) was the largest of any month since October, 1957. Backlogs of U. S. Steel Corp. increased from 3.2 million tons on June 30 to 3.7 million tons on Sept. 30, says Roger M. Blough, chairman. On Sept. 30, 1957, they totaled 6.4 million tons.

BRIGHT PROSPECTS— As they settle the last of their strikes, the automakers are sure to release additional steel orders. How much they'll buy will depend on how the new cars sell, but first reports are encouraging. Buick Div. of General Motors Corp. received more than 100,000 dealer orders in the month following introduction of its new models (vs. 37,000 in the like period last year). Oldsmobile orders are said to be double those of a year ago, and Chevrolet dealers say they'll take all the cars they can get. American Motors Corp. expects to double its Rambler sales this year.

SHEET SALES BOOMING— Despite the weakness in automotive buying, cold-rolled sheets are in great demand. Most mills are booked solid for November, and some can't promise delivery before mid-December. Appliance manufacturers have increased their orders as their business improves. Warehouses that deal mainly in secondary material (wasters and rejects) are beginning to buy more prime stock, another indication that the price structure is firming.

WIRE PRODUCTS GAIN— An upsurge in wire demand enabled the American Steel & Wire Div. of U. S. Steel Corp. to set a production record last month on the No. 1 rod mill at its Cuyahoga Works, Cleveland. (See Page 45.) This was particularly significant because: 1. It was done in the face of low-cost foreign competition. 2. It suggests that better days are ahead for the steel industry (wire products are a bellwether).

NEW DISCOUNTS ON PIPE— By offering jobbers the same discount (3 per cent) on pipe bought for inventory as they receive on goods shipped directly to their customers, National Tube Div. of U. S. Steel hopes to discourage diversion of direct shipments. The discount will be retroactive to Oct. 13 if jobbers sign contracts with the mill by Nov. 15. Otherwise, it will be effective from the contract date. National Tube is also offering jobbers a commission of $6 a ton on direct shipments (20 tons or more) of double random length API line pipe, Grades A and B. If the order is less than 20 tons, the jobber handles the billing and gets a 3 per cent discount, but no $6 commission.

KAISER'S TIN PLATE POLICY—Beset by labor troubles shortly after it began operation of a new tinning line at Fontana, Calif., Kaiser Steel Corp. is giving its customers a break. Although it will raise its prices on Nov. 1, old prices will apply to orders that were on its schedules for October and earlier. (A four-week strike that began on Sept. 13 prevented the company from keeping its commitments.) Customers must accept delivery before Dec. 1 or they'll have to pay the new prices.

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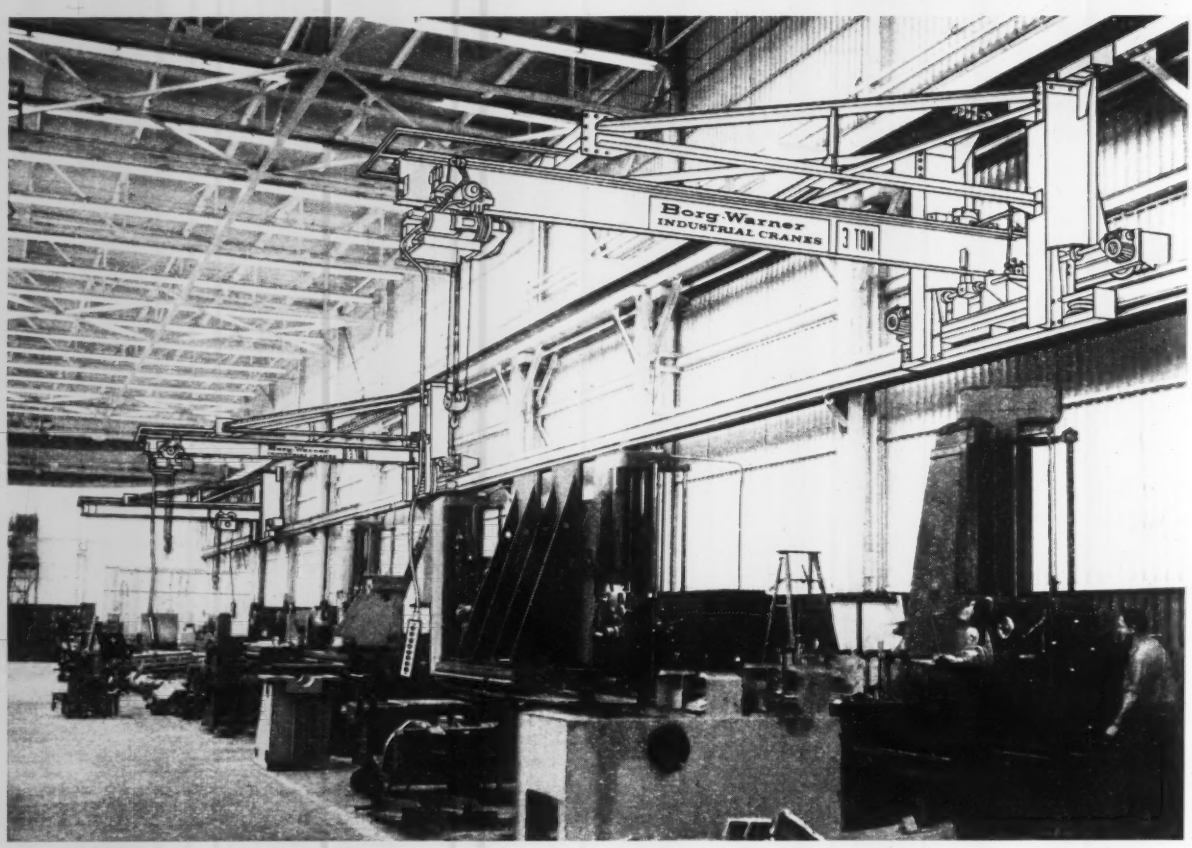

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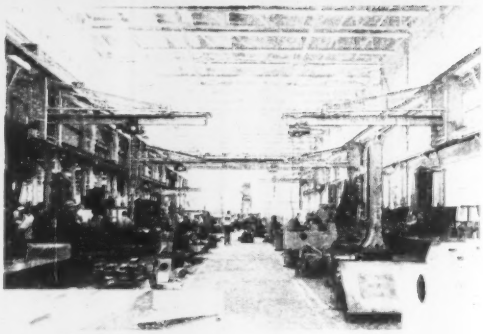

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STEEL
QUARTERLY SURVEY

MILL PRODUCTS	CURRENT INVENTORIES					1st Quarter FORECAST		
	UNDER 10 DAYS	10-30 DAYS	30-60 DAYS	60-90 DAYS	3-6 MONTHS	LOWER	SAME	HIGHER
HOT-ROLLED CARBON BARS	10%	22%	47%	16%	5%	14%	56%	30%
COLD-FINISHED BARS	2%	29%	41%	25%	3%	26%	44%	30%
H & C-R SHEETS, STRIP	8%	23%	49%	18%	2%	13%	56%	31%
LIGHT PLATES	8%	14%	53%	23%	2%	18%	64%	18%
HEAVY PLATES	10%	19%	45%	16%	10%	19%	61%	20%
STRUCTURAL SHAPES	7%	20%	43%	27%	3%	23%	64%	13%
COPPER & BRASS	10%	14%	66%	10%	—	15%	49%	36%
ALUMINUM	8%	24%	44%	16%	8%	15%	56%	29%

FIGURES are percentages of respondents to STEEL's quarterly survey.
COLOR UNDERSCORED figures show how most respondents reported.

Inventory Buildup Begins in Steel

Users of bars, sheets, and strip will add to stocks in the next three months. Buyers report their needs are growing. Mill deliveries are becoming more extended

FABRICATORS will buy more steel than they use in the remainder of this year, STEEL's quarterly survey of metal inventory trends shows. Some 26 per cent of steel buyers plan to add to their stocks in the next three months. Only 17 per cent think their supplies will be lower three months from now.

• **Trend Turns**—Steel buyers have put the brakes to an inventory-reduction trend which began late in 1956. In each survey since the end of that year, purchasing agents predicted that their stocks would be lower in three months than they were at the time of the survey. STEEL's Aug. 4 (p. 121) report showed that aluminum, copper, and brass buyers had decided that they had cut stocks enough and should start building supplies again. Now that trend is spreading to steel.

Almost all the inventory building will be in bars, sheets, and strip. Thirty per cent of hot-rolled bar buyers think their stocks will be higher in three months; only 14 per cent think they'll be lower. Cold-finished bar users also look for an inventory buildup. Among buyers of sheets, 31 per cent see an increase in inventories; 13 per cent predict a decrease.

Stocks of plates in three months will be about where they are now. Buyers of heavy plates planning to cut supplies and those who will increase them are about equal in number. STEEL's respondents say there'll be no change in stocks of light plates.

Inventories of structural shapes will decline. Need for structural steel drops in winter. So the majority of firms will reduce supplies.

Among nonferrous buyers, 33 per cent predict a larger inventory in the first quarter of 1959. Some 15 per cent will reduce stocks.

Purchasing agents will build up their stocks because of lengthening mill delivery time, fewer surpluses of metal, and gains in fabricators' operations.

• **Sheets: Hard To Get**—Of all steel products, sheets are tighten-

ing most rapidly, respondents report. Over 10 per cent of all buyers experience difficulty getting enough when they need them. A California fabricator says: "We'll build supply of cold-rolled sheets in the next quarter due to lengthening leadtimes. Producers in this area quote nine to ten weeks' delivery for sheets."

Buyers in key metalworking areas of the Midwest report difficulty in obtaining sheets and other products as quickly as they could three months ago. A Chicago fabricator notes a pinch in hot and cold-rolled sheets. A Detroit buyer says delivery times for galvanized sheets are lengthening.

Although users will have to wait longer for steel to be delivered, they probably won't suffer any disruptions in production schedules. Virtually all respondents say steel arrives when promised, but that promises are being made for later dates.

• **Few Oversupplies** — About one buyer in five reports that he has an overstock of some product, but most list only one or two items in oversupply. Six months ago (STEEL, May 5, p. 125), two in five buyers had a problem of oversupply, and most of them named five or six products which were in excess.

Dissatisfaction with inventory size has nearly disappeared in plates. Six months ago, 30 per cent of users said they had more than they wanted. Now only 5 per cent have surpluses. About 8 per cent of buyers say they have more hot-rolled bars than they require, and 7 per cent report surpluses of cold-finished bars, sheets, and structurals.

Despite the trend to building inventories, buyers are cautious about pushing stocks above a two-month supply. Average inventories are close to what they were three months ago, with about seven in ten buyers holding ten to 60 days' supply of steel and nonferrous mill products.

As mill delivery schedules lengthen, the proportion of buyers holding stocks of less than ten days is diminishing. Only 8 per cent of aluminum purchasers have that small a supply, compared with 15 per cent of the buyers three months ago.

Tin Plate . . .

Tin Plate Prices, Page 119

Tin plate suppliers have been under pressure from customers to get out shipments before the Nov. 1 price increase. October shipments were up sharply; one Pittsburgh mill's deliveries jumped 35 per cent over its September tonnage to the best level this year.

November shipments will be off noticeably because of the heavy October deliveries and because canning activity is declining seasonally.

Some market observers think that if it hadn't been for the scheduled price boost and the ensuing buying rush, 1958 tin plate shipments would probably have fallen at least 200,000 tons short of last year's total. Export trade, alone, is off that much. Now it's thought the year's total will approach the 5,957,000 tons moved in 1957.

U. S. Steel Export Co., New York, a division of U. S. Steel Corp., recently revised its export prices on tin mill products. The figure on common coke plate (1.25 lb coating), superdraw, was changed to

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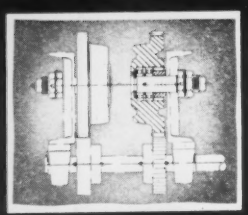

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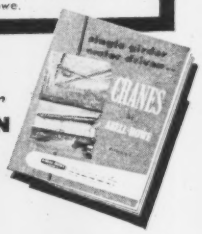

ABELL-HOWE COMPANY 7757 W. Van Buren St., Forest Park, Illinois

$10.74 per base box. The price was erroneously reported as $10.75 in the Oct. 13 issue of STEEL.

Steel Bars . . .

Bar Prices, Page 117

Merchant steel bar business is gaining steadily. Inquiry is heavier, and manufacturers, including cold-drawers and fastener producers, are specifying more freely. Larger tonnage is going to distributors, pointing to a step-up in diversified consumption.

The delivery picture hasn't changed much. Mill promises still range two to four weeks on hot-rolled carbon and hot-rolled alloy bars. Cold drawn bars, carbon and alloy, are available for relatively prompt shipment. But it is not as easy as it was to get tonnages inserted in rolling schedules.

Reinforcing Bars . . .

Reinforcing Bar Prices, Page 117

A new building product, Tensilform, is being marketed by Wheeling Steel Corp., Wheeling, W. Va. This steel base can be used as a permanent centering and is designed to support conventional concrete slabs, as well as lightweight aggregate fills. It's fabricated at the Martins Ferry, Ohio, plant from a high tensile steel.

Sheets, Strip . . .

Sheet & Strip Prices, Pages 118 & 119

Auto builders and partmakers are stepping up operations. They're using heavier sheet tonnages. In some cases, they're working overtime to make up for production lost in local strikes. Several plants are engaged at the highest level of the year, but some auto frame tonnage scheduled for November shipment has been deferred until December. Also, a Pittsburgh sheetmaker has been forced to cut its ingot production because its shipments of finished steel to its best customers have been delayed.

Inquiry for flat rolled is more brisk than it has been for some time, even though auto requirements are somewhat disappointing. Demand for hot rolled and cold rolled on automotive accounts should spurt soon.

Makers of household appliances, shipping containers, and office equipment are specifying tonnage freely. Distributors have also stepped up their orders. Forward buying continues on the cautious side, but an increasing number of consumers are ordering December tonnage in hot and cold rolled.

"Sheet sales are good right across the board," said a Pittsburgh sheetmaker last week. "October shipments were greater than September's, and we look for a continuation of good business this month. Our galvanized book is comfortable."

Deliveries of the various flat rolled items are a little more extended than they were. Hot rolled can be had in three to four weeks, cold rolled in five to seven, and galvanized in eight. Shipments of some flat-rolled specialties, including aluminized and other coated sheets and strip, extend into next year.

While consumers are not inclined toward buying beyond normal requirements, they are watching delivery dates more closely than they were.

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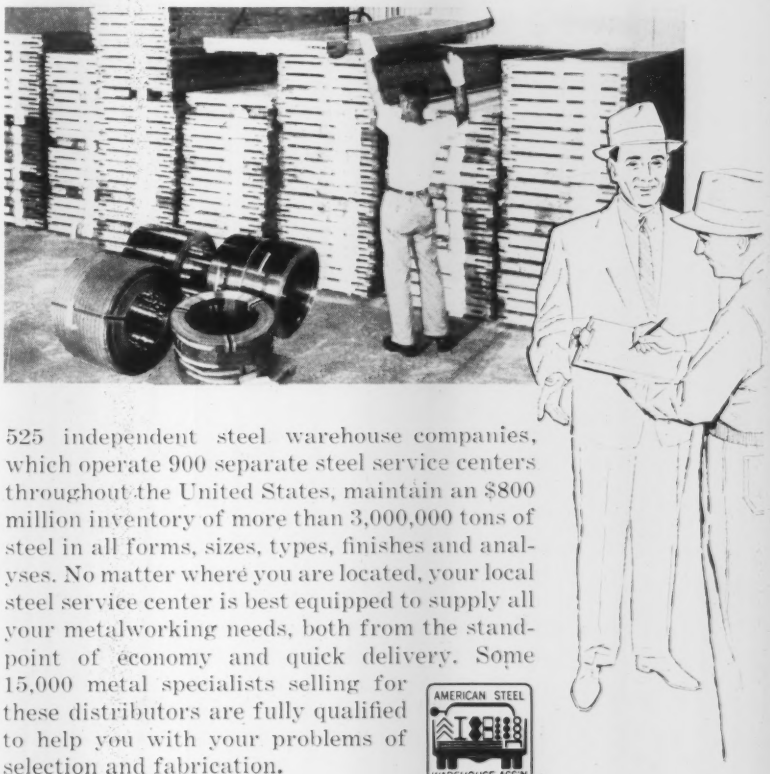

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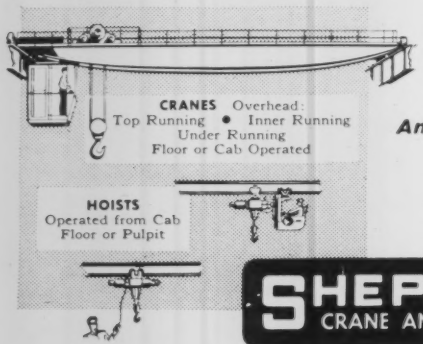

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Wire . . .

Wire Prices, Pages 119 & 120

Demand for wire rods and manufacturers wire is more active than it was, but deliveries are still available in about two weeks. Merchant wire can be obtained from stocks.

Modern facilities for making heat treated nails with several times the holding power of ordinary nails are in operation at American Steel & Wire Div.'s (U. S. Steel Corp.) Donora Steel & Wire Works, Donora, Pa. The products, known as Amering and screw-shank nails, are designed for applications where joint strength and holding power are essential. They are available in blued, coated, galvanized, or bright finish.

Plates . . .

Plate Prices, Page 117

If you think you'll need plates in substantial tonnage over coming months, especially next spring, now would seem an excellent time to place your orders with the mills. Reason: Supply is plentiful, and deliveries prompt, a situation that may not prevail when larger semifinished tonnage begins to be channeled into automotive steel products. Right now, plates and shapes are the major products in lightest demand.

While the current market situation does not suggest a spurt in demand from any particular direction, the volume moving is showing improvement. October tonnage bettered that in September, and the general feeling is that November's will register another gain.

Right now there's little buying for inventory even though sheared plates can be had at around two to three weeks and strip-plate and universal plate in three to four weeks. Improved demand for sheets and strip is tightening the situation in strip-plate.

A decision in the Memphis case is expected shortly. If it favors the gas companies, it could revive interest in pipeline construction, and a few orders for pipelines could give the plate market a substantial boost.

Tank business isn't all that it could be, but tankmakers are inquiring for more tonnage, especially for water tanks. Demand on railroad account is spotty, but includes a fair tonnage for a car program at

the Altoona, Pa., shops of the Pennsylvania. Shipwork is holding up, and demand from this area of the market promises to expand. Requirements on machine tool and industrial equipment accounts continue slow.

Japanese plates are reported to have been sold in this country at prices 1.5 cents a pound under the domestic market. Some high tensile plates were included in offerings.

Imported Steel Slipping

Prices on imported steel are off $2 to $3 a ton at Houston. Reason: A decision by the French government to cancel shipments to Russia. Also, western Europe is experiencing a recession.

Introduction of Japanese plates to the Texas market is reported. One area distributor has been offered unrestricted tonnages at $5.35 to $5.40 per 100 lb. Another report indicates a 2000-ton shipment is on its way from Japan.

Distributors . . .

Prices, Page 124

Business at steel service centers is edging upward, tonnagewise and dollarwise, as a result of recent price increases. Improvement covers practically all the major products and averages between 8 and 10 per cent—compared with September bookings.

Although unusually heavy rains slowed construction in many sections during the early part of last month, outdoor projects generally are accounting for substantial tonnages.

Tubular Goods . . .

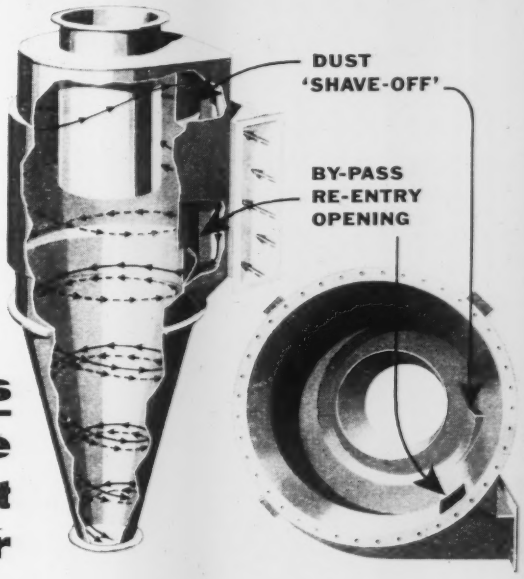
Tubular Goods Prices, Page 123

Sharon Steel Corp.'s Brainard Steel Div., Warren, Ohio, dropped production of electricwelded steel tubing and building products and ended its lease with the government on its Griswold plant at Warren.

Automotive inquiry for mechanical tubing is developing, but buyers are slow to place substantial orders. Local auto plant strikes have held up some placements.

Boilermakers are taking a little more pressure tubing.

Although offshore activity is a disturbing factor on the West Coast,



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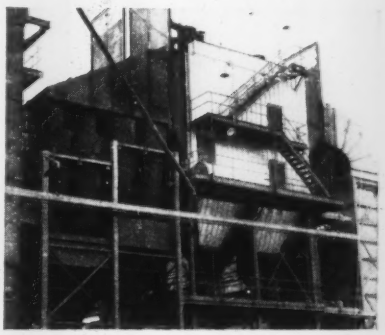

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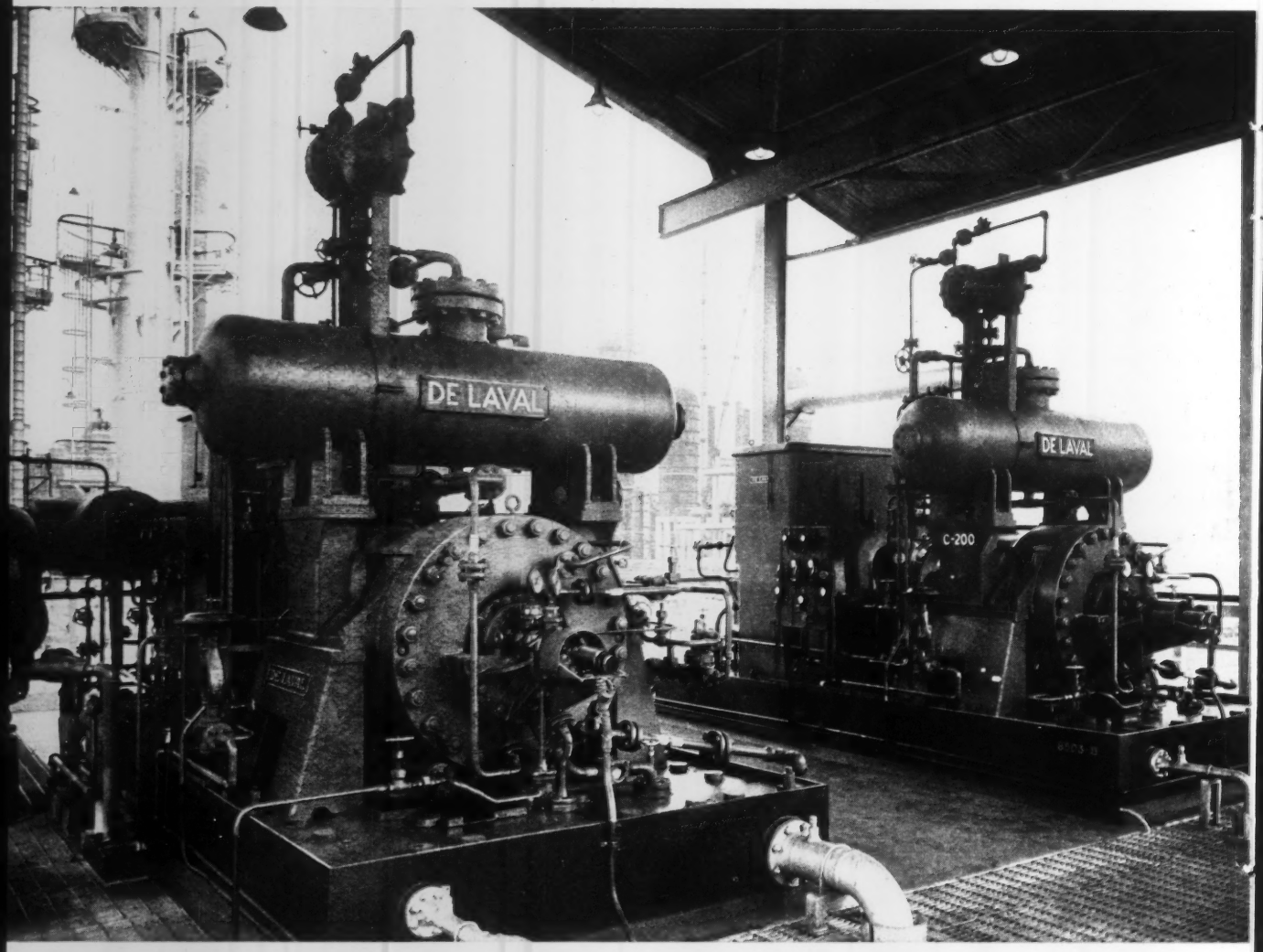

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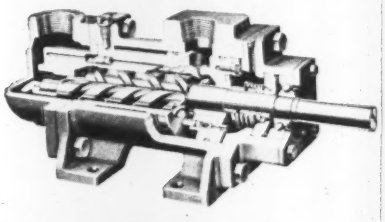

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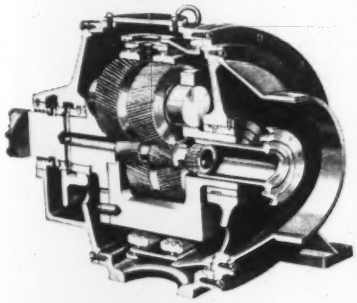

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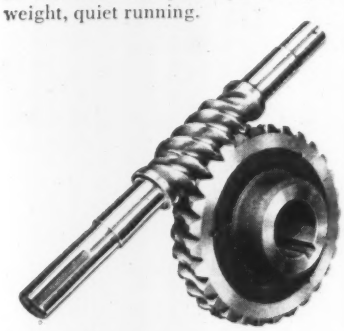

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area tube sellers report increasing activity, and they expect fourth quarter volume to be fair. Demand for large diameter pipe is better.

Seattle takes bids Jan. 14 for the proposed $23.5 million Tolt River water supply line, involving 24 miles of 54, 60, and 66 in. steel pipe, 5/16 to 5/8 in. thick.

The city of Portland, Oreg., opens bids Nov. 6 for an unstated tonnage of cast iron pipe.

Ferrous Stocks Decline

Consumption of ferrous materials (scrap and pig iron) in the U. S. in August increased 13 per cent over the July figure, reports the U. S. Bureau of Mines. Pig iron use (4,186,000 gross tons) was higher than it was during any previous month this year. Scrap consumption (4,216,000 tons) was up sharply from that in the preceding month.

The total melt (8,481,000 gross tons) consisted of 49 per cent scrap and 51 per cent pig iron during the month. That ratio was unchanged from the preceding month.

Scrap available for consumption (home plus purchased) in August totaled 4,216,000 gross tons, an increase of 12 per cent over July. Home scrap accounted for 2,427,000 tons and purchases, 1,789,000. Of the purchased material, 86 per cent was received from dealers and 14 per cent from other sources.

Domestic stocks of ferrous materials held by consumers at the end of August totaled 11,303,000 gross tons, a slight decrease from the 11,364,000 on hand July 31. Ferrous scrap stocks amounted to 7,951,000 tons, up slightly from July. Pig iron stocks were 3,352,000 tons, off 3 per cent from the 3,439,000 tons on hand at the end of the preceding month.

Ferroalloys . . .

Vanadium Corp. of America, New York, is introducing two special ferroalloys of the high chromium, extra low carbon type. With minimum 75 per cent chromium content, and maximum carbon of 0.015 or 0.025 per cent, the alloys are said to offer advantages to mills and foundries producing stainless steels and high temperature alloys. The new alloys are known as Exlo (R) "75."

Harvester Revises Prices

International Harvester Co., Chicago, revised prices on a number of products. Heavy duty motor trucks are up 2.5 per cent; prices on medium-sized trucks are unchanged. Wheel-type farm tractors (except the 650 model) are 5.8 per cent higher.

Most farm implements are up 5 per cent, but prices on a number of products weren't changed, including balers, several harrows, tractor trailers, the hillside combine, and the No. 76 combine. The over-all increase on farm equipment, including tractors, is 5.1 per cent.

Construction equipment items are up an average of 3.8 per cent. Crawler tractors are up 5 per cent. Unchanged were prices on power units, rubber tired earth movers, and some off-highway trucks.

Structural Shapes . . .

Structural Shape Prices, Page 117

Except for roadwork, structural steel inquiry is off, partly as the result of seasonal influences. Most fabricating shops are beginning to work tonnages into their schedules for delivery in less than two months.

Competition is becoming increasingly keen. On some bridge approach work, direct bids were submitted by 17 or more fabricators.

Structural deliveries now range two to four weeks.

An outstanding award last week involved 8500 tons for a 31-story office building for the Western Electric Co. in lower New York. It went to the Dreier Structural Steel Co., Long Island City, N. Y. Another important job, involving 6450 tons of steel (including 4900 tons of plates), is the Woodrow Wilson Memorial Bridge approach superstructures at Alexandria, Va. It went to the Pittsburgh-Des Moines Steel Co., Pittsburgh. About two-thirds of the steel will be purchased in the Pittsburgh district.

Washington State highway engineers are expected to call for bids in November or December for the University Bridge, a section of the Seattle freeway, involving about 12,000 tons of structurals. In Montana, bids on the Thompson Falls bridge project have been postponed until later this month. It involves 590 tons.

A master plan for a California

freeway system calls for expenditures of $10.5 billion in the next 20 years. Included will be 12,250 miles of freeways.

The California highway construction cost index dipped to 231 of the 1940 base in the three months ended June 30. At the end of the first quarter, the index stood at 241.8. The average number of bidders per project dropped to 5.4 from an average of 9.3.

STRUCTURAL SHAPES . . .

STRUCTURAL STEEL PLACED

8500 tons, 31-story office building, Western Electric Co., Broadway and Fulton St., New York, through George A. Fuller Co., general contractor, to the Dreier Structural Steel Co. Inc., Long Island City, N. Y.

1600 tons, generator station, unit No. 6, Indianapolis Power & Light Co., Indianapolis, Ind., to R. C. Mahon Co., Detroit.

400 tons, office structure at Boeing Renton plant, to Bethlehem Pacific Coast Steel Corp., Seattle; the Austin Co., Seattle, general contractor.

330 tons, Washington State highway bridge, Adams County, to Bethlehem Pacific Coast Steel Corp., Seattle; C. E. Oneal, Ellensburg, Wash., general contractor.

300 tons, plant and office building, Edwin J. Shoettle, Upper Gynedd Township, Pennsylvania, to Camden Iron Works, Camden, N. J.

174 tons, Washington State highway span, Skagit County, to Poole, McGonigle & Dick, Portland, Oreg.; Neukirck Bros., Seattle, general contractor.

110 tons, Horn & Hardart Restaurant, King of Prussia, Pa., to Cantley & Co., Philadelphia.

STRUCTURAL STEEL PENDING

12,000 tons, Washington State freeway, University Bridge, Seattle; bids to Olympia, Wash., expected within 60 days.

2200 tons, state bridge, Westchester County, New York.

1300 tons, state bridge in the Rochester-Buffalo area, New York.

1000 tons, senior high school, Pottstown, Pa.; bids Nov. 19.

800 tons, junior high school, Stroudsburg, Pa.; bids closed.

700 tons, United States Commission Building, United Nations, E. 45th Street, New York; bids closed Oct. 31.

600 tons, state bridge, Broome County, New York.

600 tons, observation tower, Niagara Falls, N. Y., for New York State Park Commission; bids closed Oct. 27.

590 tons, Montana State bridge, Thompson Falls, rebids Nov. 6 at Helena, Mont.

435 tons, two bridges, relocation project, bids to Chelan P.U.D. No. 1, Wenatchee, Wash., Nov. 21.

315 tons, state highway bridge, Maine Central Railroad and County Road, Waterville, Maine; bids Nov. 5, Augusta, Maine.

175 tons, state highway bridge, Main St., Waterville, Maine; bids Nov. 5, at Augusta, Maine.

160 tons, Oregon State interchange, Klamath County; general contract to Tom-Lillebo, Reedsport, low at $334,099.

75 tons, liners, trash racks, etc., Tolt water supply line; bids to Seattle Jan. 14.

REINFORCING BARS . . .

REINFORCING BARS PLACED

2100 tons, Ice Harbor Dam, Washington State, to Northwest Steel Rolling Mills Inc., Seattle; Guy F. Atkinson Co., South San Francisco, Calif., general contractor.

165 tons, Washington State highway projects, Adams and Skagit counties, to Bethlehem Pacific Coast Steel Corp., Seattle.

107 tons, student union building, Bellingham, Wash., to Joseph T. Ryerson & Son Inc., Seattle; Hebb & Narodick, Seattle, general contractor.

140 tons, apartment house and church extension, Seattle, to Bethlehem Pacific Coast Steel Corp., Seattle.

REINFORCING BARS PENDING

1600 tons, Tolt River Dam and supply pipe project; bids to Seattle, Jan. 14. 320 tons, also 35 tons of shapes, Washington State, Seattle ramps; bids to Olympia, Wash., Nov. 12.

315 tons, two highway relocation spans; bids to P.U.D. No. 1, Wenatchee, Wash., Nov. 21.

125 tons, Montana State, 410 ft bridge, Sanders County; general award to W. P. Roscoe, Billings, Mont., low at $94,951.

108 tons, state bridgework, Somerset County, New Jersey; bids Nov. 12.

95 tons, Bureau of Public Roads, bridges, Gallatin County, Montana, and Alaska. Bids: Nov. 4 to Helena, Mont.; Nov. 7, Juneau, Alaska.

PLATES . . .

PLATES PLACED

450 tons, Cedar River supply pipe replacement, to Hydraulic Supply Mfg. Co., Seattle; Frank Coluccio Construction Co., Seattle, low at $228,294 on the general contract.

300 tons, elevated water tank, to Pittsburg-Des Moines Steel Co., Seattle, by Portland, Oreg.

PLATES PENDING

18,855 tons, 24 miles of 54, 60, and 66 in. diameter, 5/16 to 5/8 in. thickness, steel water supply line, Tolt River; bids to Seattle, Jan. 14, 1959.

RAILS, CARS . . .

LOCOMOTIVES PENDING

Southern Pacific, seventy 1750 and 1800 hp diesel units, to the Electro-Motive Div., General Motors Corp., La Grange, Ill., and Alco Products Inc., New York.

South African Railways, one-hundred-fifteen 1800-hp diesel electric locomotives to the International General Electric Co. Equipment will be built at Erie, Pa.

RAILROAD CARS PLACED

Southern Pacific, one hundred 85 ft. flatcars for piggyback service, to General American Transportation Corp., Chicago.

Union Tank Car Corp., 42 tankcars to its Whiting, Ill., shop.

Semifinished Steel . . .

Semifinished Prices, Page 117

Introduction of a new line of high strength steels (GLX-W) is announced by Great Lakes Steel Corp., Ecorse, Mich., division of National Steel Corp. The new line consists of a series of fine grained, mild carbon steels with characteristics of high strength, toughness, and weldability. These steels are available in yield strengths from 45,000 to 60,000 psi. They possess good notch toughness at normal and subnormal temperatures. Their low carbon and manganese content is said to provide freedom from underbead cracking under adverse welding conditions.

Mill base prices for the four GLX-W series are:

	45W	50W	55W	60W
HR Plates	$5.85	$6.00	$6.35	$6.70
HR Sheets	6.00	6.15	6.50	6.85
HR Bars	6.575	6.725	7.075	7.425

DISTRICT INGOT RATES

(Percentage of Capacity Engaged)

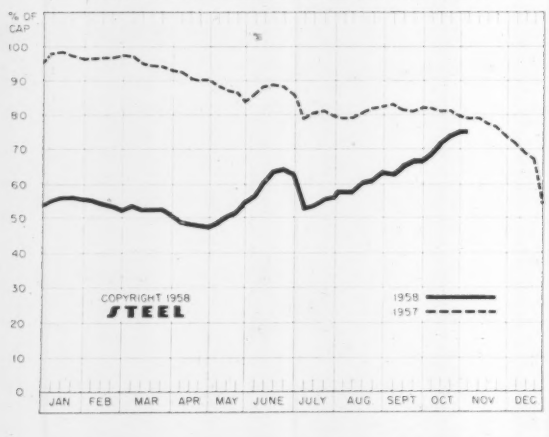
	Week Ended Nov. 2	Change	Same Week 1957	Same Week 1956
Pittsburgh	68.5	— 0.5*	81	100.5
Chicago	85	0	81.5	103
Eastern	72	+ 1	82	102
Youngstown	64	0	66	102
Wheeling	83	0	67	101.5
Cleveland	78.5	— 3*	91.5	105
Buffalo	78	0	90	107.5
Birmingham	63.5	0	69	95.5
Cincinnati	82	+ 0.5*	87	85.5
St. Louis	91	— 4*	92.5	105
Detroit	82	— 1.5*	98	99.5
Western	75	— 1*	91	109
National Rate	75	0	79	101.5

INGOT PRODUCTION‡

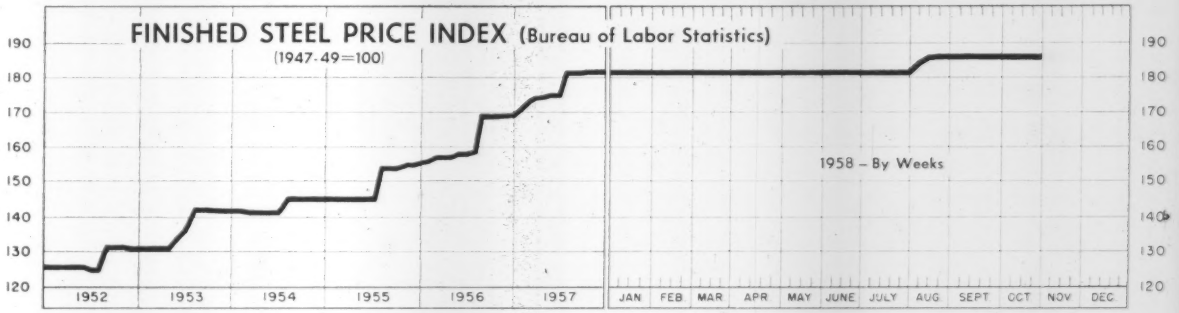
	Week Ended Nov. 2	Week Ago	Month Ago	Year Ago
INDEX (1947-49=100)	125.1†	126.1†	118.3	127.1
NET TONS (In thousands)	2,009	2,026	1,901	2,041

*Change from preceding week's revised rate. †Estimated. ‡American Iron & Steel Institute. Weekly capacity (net tons): 2,699,173 in 1958; 2,559,490 in 1957; 2,461,893 in 1956.

NATIONAL STEELWORKS OPERATIONS



Price Indexes and Composites



Oct. 28, 1958	Week Ago	Month Ago	Oct. Avg	Year Ago
186.7	186.7	186.6	186.6	181.7

AVERAGE PRICES OF STEEL (Bureau of Labor Statistics)

Week Ended Oct. 28

Prices include mill base prices and typical extras and deductions. Units are 100 lb except where otherwise noted in parentheses. For complete description of the following products and extras and deductions applicable to them, write to STEEL.

Rails, Standard No. 1	$5.825	Bars, Reinforcing	6.385
Rails, Light, 40 lb	7.292	Bars, C.F., Carbon	10.710
Tie Plates	6.875	Bars, C.F., Alloy	14.125
Axles, Railway	10.175	Bars, C.F., Stainless, 302 (lb)	0.553
Wheels, Freight Car, 33 in. (per wheel)	62.000	Sheets, H.R., Carbon	6.350
Plates, Carbon	6.350	Sheets, C.R., Carbon	7.300
Structural Shapes	6.167	Sheets, Galvanized	8.615
Bars, Tool Steel, Carbon (lb)	0.560	Sheets, C.R., Stainless, 302 (lb)	0.688
Bars, Tool Steel, Alloy, Oil Hardening Die (lb)	0.680	Sheets, Electrical	12.625
Bars, Tool Steel, H.R., Alloy, High Speed, W 6.75, Cr 4.5, V 2.1, Mo 5.5, C 0.060 (lb)	1.400	Strip, C.R., Carbon	9.489
Bars, Tool Steel, H.R., Alloy, High Speed, W18, Cr 4, V 1 (lb)	1.895	Strip, C.R., Stainless, 430 (lb)	0.493
Bars, H.R., Alloy	10.775	Strip, H.R., Carbon	6.250
Bars, H.R., Stainless, 303 (lb)	0.525	Pipe, Black, Buttweld (100 ft)	20.525
Bars, H.R., Carbon	6.675	Pipe, Galv., Buttweld (100 ft)	23.975
		Pipe, Line (100 ft)	205.710
		Casing, Oil Well, Carbon (100 ft)	201.080
		Casing, Oil Well, Alloy (100 ft)	315.213
		Tubes, Boiler (100 ft)	51.200
		Tubing, Mechanical, Carbon (100 ft)	26.157
		Tubing, Mechanical, Stainless, 304 (100 ft)	205.608
		Tin Plate, Hot-dipped, 1.25 lb (95 lb base box)	9.783
		Tin Plate, Electrolytic, 0.25 lb (95 lb base box)	8.483
		Black Plate, Canmaking Quality (95 lb base box)	7.583
		Wire, Drawn, Carbon	10.575
		Wire, Drawn, Stainless, 430 (lb)	0.653
		Bale Ties (bundles)	7.967
		Nails, Wire, 8d Common	9.828
		Wire, Barbed (80-rod spool)	8.719
		Woven Wire Fence (20-rod roll)	21.737

STEEL's FINISHED STEEL PRICE INDEX*

	Oct. 29 1958	Week Ago	Month Ago	Year Ago	5 Yr Ago
Index (1935-39 avg=100)	246.65	246.65	246.65	239.15	189.38
Index in cents per lb	6.682	6.682	6.682	6.479	5.130

STEEL's ARITHMETICAL PRICE COMPOSITES*

Finished Steel, NT	$149.28	$149.28	$149.28	$146.03	$115.18
No. 2 Fdry Pig Iron, GT	66.49	66.49	66.49	66.49	56.54
Basic Pig Iron, GT	65.99	65.99	65.99	65.99	56.04
Malleable Pig Iron, GT	67.27	67.27	67.27	67.27	57.27
Steelmaking Scrap, GT	42.00	42.33	43.00	35.33	33.83

*For explanation of weighted index see STEEL, Sept. 19, 1949, p. 54; of arithmetical price composite, STEEL, Sept. 1, 1952, p. 130

Comparison of Prices

Comparative prices by districts in cents per pound except as otherwise noted. Delivered prices based on nearest production point.

FINISHED STEEL	Oct. 29 1958	Week Ago	Month Ago	Year Ago	5 Yr Ago
Bars, H.R., Pittsburgh	5.675	5.675	5.675	5.425	4.15
Bars, H.R., Chicago	5.675	5.675	5.675	5.425	4.15
Bars, H.R., deld. Philadelphia	5.975	5.975	5.975	5.725	5.302
Bars, C.F., Pittsburgh	7.65*	7.65*	7.65*	7.30*	5.20
Shapes, Std., Pittsburgh	5.50	5.50	5.50	5.275	4.10
Shapes, Std., Chicago	5.50	5.50	5.50	5.275	4.10
Shapes, deld., Philadelphia	5.77	5.77	5.77	5.545	4.38
Plates, Pittsburgh	5.30	5.30	5.30	5.10	4.10
Plates, Chicago	5.30	5.30	5.30	5.10	4.10
Plates, Coatesville, Pa.	5.30	5.30	5.30	5.10	4.35
Plates, Sparrows Point, Md.	5.30	5.30	5.30	5.10	4.10
Plates, Claymont, Del.	5.30	5.30	5.30	5.70	4.55
Sheets, H.R., Pittsburgh	5.10	5.10	5.10	4.925	3.925
Sheets, H.R., Chicago	5.10	5.10	5.10	4.925	3.925
Sheets, C.R., Pittsburgh	6.275	6.275	6.275	6.05	4.775
Sheets, C.R., Chicago	6.275	6.275	6.275	6.05	4.775
Sheets, C.R., Detroit	6.275	6.275	6.275	6.05-6.15	4.975
Sheets, Galv., Pittsburgh	6.875	6.875	6.875	6.60	5.275
Strip, H.R., Pittsburgh	5.10	5.10	5.10	4.925	3.975-4.425
Strip, H.R., Chicago	5.10	5.10	5.10	4.925	3.925
Strip, C.R., Pittsburgh	7.425	7.425	7.425	7.15	5.45-5.95
Strip, C.R., Chicago	7.425	7.425	7.425	7.15	5.70
Strip, C.R., Detroit	7.425	7.425	7.425	7.25	5.45-6.05
Wire, Basic, Pittsburgh	8.00	8.00	8.00	7.65	5.475-5.525
Nails, Wire, Pittsburgh	8.95	8.95	8.95	8.95	6.35-6.55
Tin plate (1.50 lb)box, Pitts.	$10.30	$10.30	$10.30	$10.30	$8.95

*Including 0.35c for special quality.

SEMIFINISHED STEEL					
Billets, forging, Pitts. (NT)	$99.50	$99.50	$99.50	$96.00	$75.50
Wire rods ½-⅝" Pitts.	6.40	6.40	6.40	6.15	4.525

PIG IRON, Gross Ton	Oct. 29 1958	Week Ago	Month Ago	Year Ago	5 Yr Ago
Bessemer, Pitts.	$67.00	$67.00	$67.00	$67.00	$57.00
Basic, Valley	66.00	66.00	66.00	66.00	56.00
Basic, deld., Phila.	70.41	70.41	70.41	70.01	60.75
No. 2 Fdry, Neville Island, Pa.	66.50	66.50	66.50	66.50	56.50
No. 2 Fdry, Chicago	66.50	66.50	66.50	66.50	56.50
No. 2 Fdry, deld., Phila.	70.91	70.91	70.91	70.51	61.25
No. 2 Fdry, Birm.	62.50	62.50	62.50	62.50	52.88
No. 2 Fdry (Birm.) deld. Cin	70.20	70.20	70.20	70.20	60.43
Malleable, Valley	66.50	66.50	66.50	66.50	56.50
Malleable, Chicago	66.50	66.50	66.50	66.50	56.50
Ferromanganese, net ton†	245.00	245.00	245.00	245.00	200.00

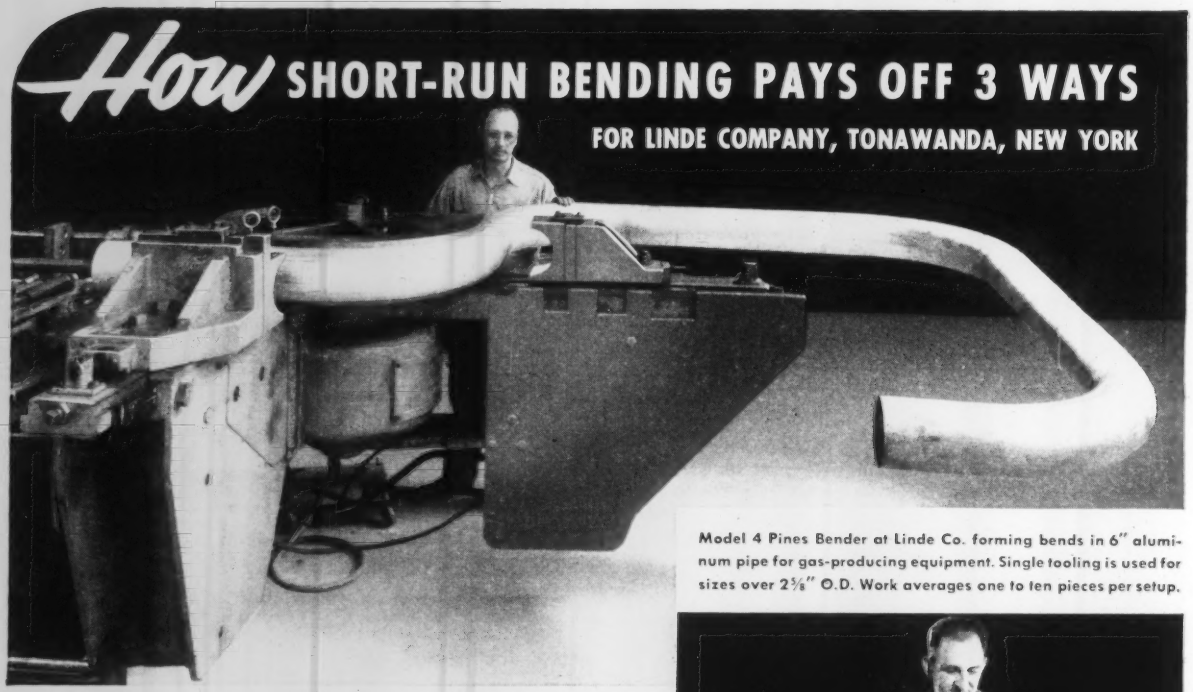
†74-76% Mn, Duquesne, Pa.

SCRAP, Gross Ton (Including broker's commission)					
No. 1 Heavy Melt, Pittsburgh	$43.50	$43.50	$43.50	$35.50	$36.50
No. 1 Heavy Melt, E. Pa.	40.00	41.00	42.00	36.50	31.50
No. 1 Heavy Melt, Chicago	42.50	42.50	43.50	34.00	33.50
No. 1 Heavy Melt, Valley	43.50	43.50	43.50	33.50	35.50
No. 1 Heavy Melt, Cleve.	40.00	40.00	40.00	30.50	32.50
No. 1 Heavy Melt, Buffalo	35.50	35.50	34.50	36.50	34.50
Rails, Rerolling, Chicago	62.00	62.00	64.50	49.50	43.50
No. 1 Cast, Chicago	45.50	45.50	46.50	35.50	32.50

COKE, Net Ton					
Beehive, Furn., Connlsvl.	$15.25	$15.25	$15.25	$15.25	$14.75
Beehive, Fdry., Connlsvl.	18.25	18.25	18.25	18.25	18.75
Oven, Fdry, Milwaukee	30.50	30.50	30.50	30.50	25.25

How SHORT-RUN BENDING PAYS OFF 3 WAYS

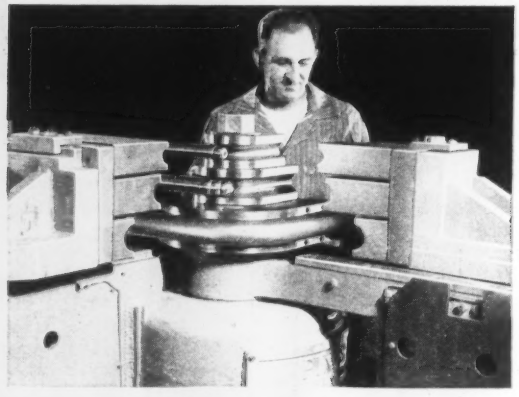
FOR LINDE COMPANY, TONAWANDA, NEW YORK



Model 4 Pines Bender at Linde Co. forming bends in 6" aluminum pipe for gas-producing equipment. Single tooling is used for sizes over 2⅝" O.D. Work averages one to ten pieces per setup.

Diverse Jobs Now Handled on Two PINES Machines

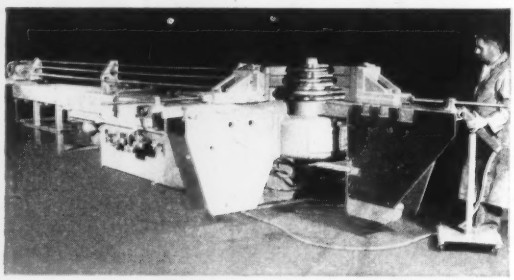
Here's another example of how extremely short runs can be handled efficiently and profitably on Pines Bending Machines. At Linde Company, Division of Union Carbide Corporation, Tonawanda, New York, a large Pines Model 4 and a medium-sized Model 2 Machine are now employed to make bends in a variety of copper alloy, stainless steel, and aluminum tubing. Tube sizes range from ½" up to 6" O.D. Lots average from one to ten pieces per setup. Results show a three-way saving. A large number of costly fittings previously used in fabricating oxygen and inert gas equipment has been eliminated. This, in turn, has effected a substantial reduction in the number of welding operations required. In addition, the facility for making bends quickly and as required has made possible a substantial reduction in inventory investment.



View of stacked die tooling which permits individual bending of three different tube sizes (1⅝", 2⅛", 2⅝" O.D.) without tool changes. Simple machine settings handle different angle requirements.

Multiple Dies Minimize Setup Time

As illustrated, for work up to 2⅝" O.D., a number of multiple stacked dies are employed which substantially reduce setup time. Tools are designed for interchangeability between the Model 2 and Model 4 machines. This permits handling as many as seven different tube sizes without a tool change. The ability to handle different bend angles that a given job may require by simple settings on the machines, contributes also to the efficiency the Linde Company has achieved in handling their requirements.



Over-all view of Model 4 machine equipped with three mandrels and stacked dies. Selection of standard radii also minimizes tooling and setup requirements over a wide range of sizes.

PINES ENGINEERING CO., INC.

Specialists in Tube Fabricating Machinery · 662 WALNUT • AURORA, ILLINOIS

PRODUCTION BENDING • DEBURRING • CHAMFERING MACHINERY

FREE CASE STUDY DATA

Ask your Pines representative for assistance in analyzing your present bending methods. There is no obligation. Or, write today for additional facts and case study data on the cost-cutting advantages of production bending.

Steel Prices

Mill prices as reported to STEEL, Oct. 29, cents per pound except as otherwise noted. Changes shown in italics. Code number following mill points indicates producing company. Key to producers, page 118; footnotes, page 120.

SEMIFINISHED

INGOTS, Carbon, Forging (NT)
Munhall,Pa. U5 .....$76.00

INGOTS, Alloy (NT)
Detroit S41 .....$82.00
Economy,Pa. B14 .....82.00
Farrell,Pa. S3 .....82.00
Lowellville,O. S3 .....82.00
Midland,Pa. C18 .....82.00
Munhall,Pa. U5 .....82.00
Sharon,Pa. S3 .....82.00

BILLETS, BLOOMS & SLABS
Carbon, Rerolling (NT)
Bartonville,Ill. K4 ...$82.00
Bessemer,Pa. U5 .....80.00
Buffalo R2 .....80.00
Clairton,Pa. U5 .....80.00
Ensley,Ala. T2 .....80.00
Fairfield,Ala. T2 ....80.00
Fontana,Calif. K1 ....90.50
Gary,Ind. U5 .....80.00
Johnstown,Pa. B3 ....80.00
Lackawanna,N.Y. B2 ..80.00
Munhall,Pa. U5 .....80.00
Owensboro,Ky. G8 ....80.00
S.Chicago,Ill. R2, U5 ..80.00
S.Duquesne,Pa. U5 ....80.00
Sterling,Ill. N15 .....80.00
Youngstown R2 .....80.00

Carbon, Forging (NT)
Bessemer,Pa. U5 ....$99.50
Buffalo R2 .....99.50
Canton,O. R2 .....102.00
Clairton,Pa. U5 .....99.50
Conshohocken,Pa. A3..104.50
Ensley,Ala. T2 .....99.50
Fairfield,Ala. T2 ....99.50
Farrell,Pa. S3 .....99.50
Fontana,Calif. K1 ....109.00
Gary,Ind. U5 .....99.50
Geneva,Utah C11 ....99.50
Houston S5 .....104.50
Johnstown,Pa. B2 ....99.50
Lackawanna,N.Y. B2 ..99.50
LosAngeles B3 .....109.00
Midland,Pa. C18 .....99.50
Munhall,Pa. U5 .....99.50
Owensboro,Ky. G8 ....99.50
Seattle B3 .....113.00
Sharon,Pa. S3 .....99.50
S.Chicago R2, U5, W14..99.50
S.Duquesne,Pa. U5 ....99.50
S.SanFrancisco B3 ...109.00
Warren,O. C17 .....99.50

Alloy, Forging (NT)
Bethlehem,Pa. R2 ..$119.00
Bridgeport,Conn. C32 .119.00
Buffalo R2 .....119.00
Canton,O. R2, T7 ....119.00
Conshohocken,Pa. A3..126.00
Detroit S41 .....119.00
Economy,Pa. B14 .....119.00
Farrell,Pa. S3 .....119.00
Fontana,Calif. K1 ....140.00
Gary,Ind. U5 .....119.00
Houston S5 .....124.00
Ind.Harbor,Ind. Y1 ...119.00
Johnstown,Pa. B2 ....119.00
Lackawanna,N.Y. B2..119.00
LosAngeles B3 .....139.00
Lowellville,O. S3 ....119.00
Massillon,O. R2 .....119.00
Midland,Pa. C18 .....119.00
Munhall,Pa. U5 .....119.00
Owensboro,Ky. G8 ....119.00
Sharon,Pa. S3 .....119.00
S.Chicago R2,U5,W14.119.00
S.Duquesne,Pa. U5 ...119.00
Struthers,O. Y1 .....119.00
Warren,O. C17 .....119.00

ROUNDS, SEAMLESS TUBE (NT)
Buffalo R2 .....$122.50
Canton,O. R2 .....125.00
Cleveland R2 .....122.50
Gary,Ind. U5 .....122.50
S.Chicago,Ill. R2, W14 122.50
S.Duquesne,Pa. U5 ..122.50
Warren,O. C17 .....122.50

SKELP
Aliquippa,Pa. J5 .....5.05
Munhall,Pa. U5 .....5.05
Pittsburgh J5 .....5.05
Warren,O. R2 .....5.05
Youngstown R2, U5 ....5.05

WIRE RODS
AlabamaCity,Ala. R2 ..6.40
Aliquippa,Pa. J5 .....6.40
Alton,Ill. L1 .....6.60
Bartonville,Ill. K4 ....6.50
Buffalo W12 .....6.40
Cleveland A7 .....6.40
Donora,Pa. A7 .....6.40
Fairfield,Ala. T2 .....6.40
Houston S5 .....6.65
IndianaHarbor,Ind. Y1..6.40
Johnstown,Pa. B2 ....6.40
Joliet,Ill. A7 .....6.40
KansasCity,Mo. S5 ....6.65
Kokomo,Ind. C16 .....6.50
LosAngeles B3 .....7.20
Minnequa,Colo. C10 ....6.65
Monessen,Pa. P7 .....6.40
N.Tonawanda,N.Y. B11..6.40
Pittsburg,Calif. C11 ....7.20
Portsmouth,O. P12 ....6.40
Roebling,N.J. R5 .....6.50
S.Chicago,Ill. R2, W14 ..6.40
SparrowsPoint,Md. B2 ..6.50
Sterling,Ill.(1) N15 ....6.40
Sterling,Ill. N15 .....6.50
Struthers,O. Y1 .....6.40
Worcester,Mass. A7 ....6.70

STRUCTURALS

Carbon Steel Std. Shapes
AlabamaCity,Ala. R2 ..5.50
Aliquippa,Pa. J5 .....5.50
Atlanta A11 .....5.70
Bessemer,Ala. T2 .....5.50
Bethlehem,Pa. B2 .....5.55
Birmingham C15 .....5.50
Clairton,Pa. U5 .....5.50
Fairfield,Ala. T2 .....5.50
Fontana,Calif. K1 ....6.30
Gary,Ind. U5 .....5.50
Geneva,Utah C11 .....5.50
Houston S5 .....5.60
Ind.Harbor,Ind. I-2, Y1..5.50
Johnstown,Pa. B2 .....5.55
Joliet,Ill. F22 .....5.50
KansasCity,Mo. S5 ....5.60
Lackawanna,N.Y. B2 ..5.55
LosAngeles B3 .....6.20
Minnequa,Colo. C10 ....5.80
Munhall,Pa. U5 .....5.50
Niles,Calif. P1 .....6.25
Phoenixville,Pa. P4 ....5.55
Portland,Oreg. O4 ....6.25
Seattle B3 .....6.25
S.Chicago,Ill. U5, W14..5.50
S.SanFrancisco B3 ....6.15
Sterling,Ill. N15 .....5.50
Torrance,Calif. C11 ....6.20
Weirton,W.Va. W6 ....5.50

Wide Flange
Bethlehem,Pa. B2 .....5.55
Clairton,Pa. U5 .....5.50
Fontana,Calif. K1 ....6.45
IndianaHarbor,Ind. I-2..5.50
Lackawanna,N.Y. B2 ..5.55
Munhall,Pa. U5 .....5.50
Phoenixville,Pa. P4 ....5.55
S.Chicago,Ill. U5 .....5.50
Weirton,W.Va. W6 ....5.50

Alloy Std. Shapes
Aliquippa,Pa. J5 .....6.80
Clairton,Pa. U5 .....6.80
Gary,Ind. U5 .....6.80
Houston S5 .....6.90
Munhall,Pa. U5 .....6.80
S.Chicago,Ill. U5, W14..6.80

H.S., L.A. Std. Shapes
Aliquippa,Pa. J5 .....8.05
Bessemer,Ala. T2 .....8.05
Bethlehem,Pa. B2 .....8.10
Clairton,Pa. U5 .....8.05
Fairfield,Ala. T2 .....8.05
Fontana,Calif. K1 ....8.85
Gary,Ind. U5 .....8.05
Geneva,Utah C11 .....8.05
Houston S5 .....8.15
Ind.Harbor,Ind. I-2, Y1..8.05
Johnstown,Pa. B2 .....8.10
KansasCity,Mo. S5 ....8.15
Lackawanna,N.Y. B2 ..8.10
LosAngeles B3 .....8.75
Munhall,Pa. U5 .....8.05
Seattle B3 .....8.90
S.Chicago,Ill. U5, W14..8.05
S.SanFrancisco B3 ....8.70
Struthers,O. Y1 .....8.05

H. S., L.A. Wide Flange
Bethlehem,Pa. B2 .....8.10
Ind.Harbor,Ind. I-2 ....8.05
Lackawanna,N.Y. B2 ..8.10
Munhall,Pa. U5 .....8.05
S.Chicago,Ill. U5 .....8.05

PILING

BEARING PILES
Bethlehem,Pa. B2 .....5.55
Ind.Harbor,Ind. I-2 ....5.50
Lackawanna,N.Y. B2 ..5.55
Munhall,Pa. U5 .....5.50
S.Chicago,Ill. I-2, U5 ..5.50

STEEL SHEET PILING
Ind.Harbor,Ind. I-2 ....6.50
Lackawanna,N.Y. B2 ..6.50
Munhall,Pa. U5 .....6.50
S.Chicago,Ill. I-2, U5 ..6.50
Weirton,W.Va. W6 ....6.50

PLATES

PLATES, Carbon Steel
AlabamaCity,Ala. R2 ..5.30
Aliquippa,Pa. J5 .....5.30
Ashland,Ky.(15) A10 ...5.30
Atlanta A11 .....5.50
Bessemer,Ala. T2 .....5.30
Clairton,Pa. U5 .....5.30
Claymont,Del. C22 ....5.30
Cleveland J5, R2 .....5.30
Coatesville,Pa. L7 .....5.30
Conshohocken,Pa. A3 ..5.30
Ecorse,Mich. G5 .....5.30
Fairfield,Ala. T2 .....5.30
Farrell,Pa. S3 .....5.30
Fontana,Calif.(30) K1 ..6.10
Gary,Ind. U5 .....5.30
Geneva,Utah C11 .....5.30
GraniteCity,Ill. G4 ....5.40
Harrisburg,Pa. P4 .....5.30
Houston S5 .....5.40
Ind.Harbor,Ind. I-2, Y1..5.30
Johnstown,Pa. B2 .....5.30
Lackawanna,N.Y. B2 ..5.30
Mansfield,O. E6 .....5.30
Minnequa,Colo. C10 ....6.15
Munhall,Pa. U5 .....5.30
Newport,Ky. A2 .....5.30
Pittsburgh J5 .....5.30
Riverdale,Ill. A1 .....5.30
Seattle B3 .....6.20
Sharon,Pa. S3 .....5.30
S.Chicago,Ill. U5, W14..5.30
SparrowsPoint,Md. B2 ..5.30
Sterling,Ill. N15 .....5.30
Steubenville,O. W10 ....5.30
Warren,O. R2 .....5.30
Youngstown U5, Y1 ....5.30
Youngstown(27) R2 ....5.30

PLATES, Carbon Abras. Resist.
Claymont,Del. C22 ....6.75
Fontana,Calif. K1 .....7.85
Geneva,Utah C11 .....7.05
Houston S5 .....7.15
Johnstown,Pa. B2 .....7.05
SparrowsPoint,Md. B2 ..7.05

PLATES, Wrought Iron
Economy,Pa. B14 .....13.55

PLATES, H.S., L.A.
Aliquippa,Pa. J5 .....7.95
Ashland,Ky. A10 .....7.95
Bessemer,Ala. T2 .....7.95
Clairton,Pa. U5 .....7.95
Claymont,Del. C22 ....7.95
Cleveland J5, R2 .....7.95
Coatesville,Pa. L7 .....7.95
Conshohocken,Pa. A3 ..7.95
Economy,Pa. B14 .....7.95
Ecorse,Mich. G5 .....7.95
Fairfield,Ala. T2 .....7.95
Farrell,Pa. S3 .....7.95
Fontana,Calif.(30) K1 ..8.75
Gary,Ind. U5 .....7.95
Geneva,Utah C11 .....7.95
Houston S5 .....8.05
Ind.Harbor,Ind. I-2, Y1..7.95
Johnstown,Pa. B2 .....7.95
Munhall,Pa. U5 .....7.95
Pittsburgh J5 .....7.95
Seattle B3 .....8.85
Sharon,Pa. S3 .....7.95
S.Chicago,Ill. U5, W14..7.95
SparrowsPoint,Md. B2 ..7.95
Warren,O. R2 .....7.95
Youngstown U5, Y1 ....7.95

PLATES, ALLOY
Aliquippa,Pa. J5 .....7.50
Claymont,Del. C22 ....7.50
Coatesville,Pa. L17 ....7.50
Economy,Pa. B14 .....7.50
Farrell,Pa. S3 .....7.50
Fontana,Calif. K1 .....8.30
Gary,Ind. U5 .....7.50
Houston S5 .....7.60
Ind.Harbor,Ind. Y1 ....7.50
Johnstown,Pa. B2 .....7.50
Lowellville,O. S3 .....7.50
Munhall,Pa. U5 .....7.50
Newport,Ky. A2 .....7.50
Pittsburgh J5 .....7.50
Seattle B3 .....8.40
Sharon,Pa. S3 .....7.50
S.Chicago,Ill. U5, W14..7.50
SparrowsPoint,Md. B2 ..7.50
Youngstown Y1 .....7.50

FLOOR PLATES
Cleveland J5 .....6.375
Conshohocken,Pa. A3 ..6.375
Ind.Harbor,Ind. I-2 ...6.375
Munhall,Pa. U5 .....6.375
Pittsburgh J5 .....6.375
S.Chicago,Ill. U5 .....6.375

PLATES, Ingot Iron
Ashland c.l.(15) A10 ..5.55
Ashland l.c.l.(15) A10 ..6.05
Cleveland c.l. R2 .....6.05
Warren,O. c.l. R2 .....6.05

BARS

BARS, Hot-Rolled Carbon (Merchant Quality)
Ala.City,Ala.(9) R2 ..5.675
Aliquippa,Pa.(9) J5 ..5.675
Alton,Ill. L1 .....5.875
Atlanta(9) A11 .....5.875
Bessemer,Ala.(9) T2 ..5.675
Birmingham(9) C15 ...5.675
Buffalo(9) R2 .....5.675
Canton,O.(23) R2 .....6.15
Clairton,Pa.(9) U5 ....5.675
Cleveland(9) R2 .....5.675
Ecorse,Mich.(9) G5 ....5.675
Emeryville,Calif. J7 ...6.425
Fairfield,Ala.(9) T2 ..5.675
Fairless,Pa.(9) U5 ....5.825
Fontana,Calif.(9) K1 ..6.375
Gary,Ind.(9) U5 .....5.675
Houston(9) S5 .....5.925
Ind.Harbor(9) I-2, Y1..5.675
Johnstown,Pa.(9) B2 ..5.675
Joliet,Ill. P22 .....5.675
KansasCity,Mo.(9) S5..5.925
Lackawanna(9) B2 ....5.675
LosAngeles(9) B3 .....6.375
Massillon,O.(23) R2 ....6.15
Midland,Pa.(23) C18 ...6.025
Milton,Pa. M18 .....5.825
Minnequa,Colo. C10 ....6.125
Niles,Calif. P1 .....6.375
N.Tonawanda,N.Y.(23)B11 6.025
Owensboro,Ky.(9) G8 ..6.025
Pittsburg,Calif.(9) C11..6.375
Pittsburgh(9) J5 .....5.675
Portland,Oreg. O4 .....6.425
Riverdale,Ill.(9) A1 ..5.675
Seattle B3, N14 .....6.425
S.Ch'c'go(9)R2,U5,W14 5.675
S.Duquesne,Pa.(9) U5..5.675
S.SanFran.,Calif.(9) B3 6.425
Sterling,Ill.(1)(9) N15..5.675
Sterling,Ill.(9) N15 ...5.775
Struthers,O.(9) Y1 ....5.675
Tonawanda,N.Y. B12 ..5.675
Torrance,Calif.(9) C11..6.375
Warren,O. C17 .....6.025
Youngstown(9) R2, U5..5.675

BARS, Hot-Rolled Alloy
Aliquippa,Pa. J5 .....6.725
Bethlehem,Pa. B2 .....6.725
Bridgeport,Conn. C32 ..6.80
Buffalo R2 .....6.725
Canton,O. R2, T7 .....6.725
Clairton,Pa. U5 .....6.725
Detroit S41 .....6.725
Economy,Pa. B14 .....6.725
Ecorse,Mich. G5 .....6.725
Fairless,Pa. U5 .....6.875
Farrell,Pa. S3 .....6.725
Fontana,Calif. K1 ....7.775
Gary,Ind. U5 .....6.725
Houston S5 .....6.975
Ind.Harbor,Ind. I-2, Y1..6.725
Johnstown,Pa. B2 .....6.725
KansasCity,Mo. S5 ....6.975
Lackawanna,N.Y. B2..6.725
LosAngeles B3 .....7.775
Lowellville,O. S3 .....6.725
Massillon,O. R2 .....6.725
Midland,Pa. C18 .....6.725
Owensboro,Ky. G8 .....6.725
Pittsburgh J5 .....6.725
Sharon,Pa. S3 .....6.725
S.Chicago R2, U5, W14 6.725
S.Duquesne,Pa. U5 ....6.725
Struthers,O. Y1 .....6.725
Warren,O. C17 .....6.725
Youngstown U5 .....6.725

BARS & SMALL SHAPES, H.R. High-Strength, Low-Alloy
Aliquippa,Pa. J5 .....8.30
Bessemer,Ala. T2 .....8.30
Bethlehem,Pa. B2 .....8.30
Clairton,Pa. U5 .....8.30
Cleveland R2 .....8.30
Ecorse,Mich. G5 .....8.30
Fairfield,Ala. T2 .....8.30
Fontana,Calif. K1 .....9.00
Gary,Ind. U5 .....8.30
Houston S5 .....8.55
Ind.Harbor,Ind. Y1 ....8.30
Johnstown,Pa. B2 .....8.30
KansasCity,Mo. S5 ....8.55
Lackawanna,N.Y. B2 ..8.30
LosAngeles B3 .....9.00
Pittsburgh J5 .....8.30
Seattle B3 .....9.05
S.Chicago,Ill. R2, W14..8.30
S Duquesne,Pa. U5 ....8.30
S SanFrancisco B3 ....9.05
Struthers,O. Y1 .....8.30
Youngstown U5 .....8.30

BAR SIZE ANGLES; H.R. Carbon
Bethlehem,Pa.(9) B2 ..5.825
Houston(9) S5 .....5.925
KansasCity,Mo.(9) S5..5.925
Lackawanna(9) B2 ....5.675
Sterling,Ill N15 .....5.775
Sterling,Ill (1) N15 ...5.675
Tonawanda,N.Y. B12 ..5.675

BAR SIZE ANGLES: S. Shapes
Aliquippa,Pa. J5 .....5.675
Atlanta A11 .....5.875
Joliet,Ill. P22 .....5.675
Minnequa,Colo. C10 ....6.125
Niles,Calif. P1 .....6.375
Pittsburgh J5 .....5.675
Portland,Oreg. O4 ....6.425
SanFrancisco S7 .....6.52
Seattle B3 .....6.425

BAR SHAPES, Hot-Rolled Alloy
Aliquippa,Pa. J5 .....6.80
Clairton,Pa. U5 .....6.80
Gary,Ind. U5 .....6.80
Houston S5 .....7.05
KansasCity,Mo. S5 ....7.05
Pittsburgh J5 .....6.80
Youngstown U5 .....6.80

BARS, C.F. Leaded (Including leaded extra)

Carbon
LosAngeles P2. S30 ..11.75*

Alloy
Ambridge,Pa. W18 ..10.175
BeaverFalls,Pa. M12 ..10 175
Camden,N.J. P13 ....10.35
Chicago W18 .....10 175
Elyria,O. W8 .....10 175
Monaca,Pa. S17 ....10 175
Newark,N.J. W18 ....10.35
SpringCity,Pa. K3 ....10.35

*Grade A; add 0.050c for Grade B.

BARS, Cold-Finished Carbon
Ambridge,Pa. W18 ....7.65
BeaverFalls,Pa. M12,R2 7.65
Birmingham C15 .....8.25
Buffalo B5 .....7.70
Camden,N.J. P13 .....8.10
Carnegie,Pa. C12 .....7.65
Chicago W18 .....7.65
Cleveland A7, C20 ....7.65
Detroit B5, P17 .....7.85
Detroit S41 .....7.65
Donora,Pa. A7 .....7.65
Elyria,O. W8 .....7.65
FranklinPark,Ill. N5....7.65
Gary,Ind. R2 .....7.65
GreenBay,Wis. F7 ....7.65
Hammond,Ind. J5, L2 ..7.65
Hartford,Conn. R2 .....8.15
Harvey,Ill. B5 .....7.65
LosAngeles(49) S30 ....9.10
LosAngeles(49) P2, R2 9.10
Mansfield,Mass. B2 ...8.20
Massillon,O. R2, R8 ....7.65
Midland,Pa. C18 .....7.65
Monaca,Pa. S17 .....7.65
Newark,N.J. W18 .....8.10
NewCastle,Pa.(17) B4 ..7.65
Pittsburgh J5 .....7.65
Plymouth,Mich. P5 ....7.90
Putnam,Conn W18 ....8.20
Readville,Mass. C14 ....8.20
S Chicago,Ill. W14 ....7.65
SpringCity,Pa. K3 ....8.10
Struthers,O. Y1 .....7.65
Warren,O. C17 .....7.65
Waukegan,Ill. A7 .....7.65
Willimantic,Conn. J5 ...8.15
Youngstown F3, Y1 ....7.65

BARS, Cold-Finished Carbon (Turned and Ground)
Cumberland,Md.(5) C19.6.55

BARS, Cold-Finished Alloy
Ambridge,Pa. W18 ...9.025
BeaverFalls,Pa.M12,R2 9.025
Bethlehem,Pa. B2 ....9.025
Bridgeport,Conn. C32 ..9.175
Buffalo B5 .....9.025
Camden,N.J. P13 .....9.20
Canton,O. T7 .....9.025
Carnegie,Pa. C12 .....9.025
Chicago W18 .....9.025
Cleveland A7, C20 ....9.025
Detroit B5, P17 .....9.225
Detroit S41 .....9.025
Donora,Pa. A7 .....9.025
Elyria,O. W8 .....9.025
FranklinPark,Ill. N5 ..9.025
Gary,Ind. R2 .....9.025
GreenBay,Wis. F7 ....9.025
Hammond,Ind. J5, L2..9.025
Hartford,Conn. R2 ....9.325
Harvey,Ill B5 .....9.025
Lackawanna,N.Y. B2 ..9.025
LosAngeles P2, S30 ...11.00
Mansfield,Mass. B5....9.325
Massillon,O. R2, R8 ....9.025
Midland,Pa. C18 .....9.025
Monaca,Pa. S17 .....9.025
Newark,N.J. W18 .....9.20
Plymouth,Mich. P5 ....9.225
S.Chicago,Ill. W14 ....9.025
SpringCity,Pa. K3 ....9.20
Struthers,O. Y1 .....9.025
Warren,O. C17 .....9.025
Waukegan,Ill. A7 .....9.025
Willimantic,Conn. J5 ..9.325
Worcester,Mass. A7 ....9.325
Youngstown F3, Y1 ....9.025

BARS, Reinforcing, Billet (To Fabricators)

AlabamaCity,Ala. R2 ..5.675
Atlanta A11 .....5.675
Birmingham C15 .....5.675
Buffalo R2 .....5.675
Cleveland R2 .....5.675
Ecorse,Mich. G5 .....5.675
Emeryville,Calif. J7 ...6.425
Fairfield,Ala. T2 .....5.675
Fairless,Pa. U5 .....5.825
Fontana,Calif. K1 ....6.375
Ft.Worth,Tex.(4)(26)T4 6.125
Gary,Ind. U5 .....5.675
Houston S5 .....5.925
Ind.Harbor,Ind. I-2, Y1 5.675
Johnstown,Pa. B2 ....5.675
Joliet,Ill. P22 .....5.675
KansasCity,Mo. S5 ....5.925
Kokomo,Ind. C16 .....5.775
Lackawanna,N.Y. B2 ..5.675
LosAngeles B3 .....6.375
Madison,Ill. LI 5.875
Milton,Pa. M18 .....5.825
Minnequa,Colo. C10 ...6.125
Niles,Calif. P1 .....6.375
Pittsburg,Calif. C11 ..6.375
Pittsburgh J5 .....5.675
Portland,Oreg. O4 ....6.425
SandSprings,Okla. S5 ..5.925
Seattle B3, N14 .....6.425
S.Chicago,Ill. R2, W14 .5.675
S.Duquesne,Pa. U5 ....5.675
S.SanFrancisco B3 ....6.425
SparrowsPoint,Md. B2..5.675
Sterling,Ill.(1) N15 ...5.675
Sterling,Ill. N15 .....5.775
Struthers,O. Y1 .....5.675
Tonawanda,N.Y. B12 ...6.10
Torrance,Calif. C11 ...6.375
Youngstown R2, U5 ...5.675

BARS, Reinforcing, Billet (Fabricated to Consumers)

Baltimore B2 .....7.42
Boston B2, U8 .....8.15
Chicago U8 .....7.41
Cleveland U8 .....7.39
Houston S5 .....7.60
Johnstown,Pa. B2 .....7.33
KansasCity,Mo. S5 .....7.60
Lackawanna,N.Y. B2 ..7.35
Marion,O. P11 .....6.70
Newark,N.J. U8 .....7.80
Philadelphia U8 .....7.63
Pittsburgh J5, U8 .....7.35
SandSprings,Okla. S5 ...7.60
Seattle B3, N14 .....7.95
SparrowsPt.,Md. B2 ...7.33
St Paul U8 .....8.17
Williamsport,Pa. S19 ...7.25

BARS, Wrought Iron

Economy,Pa.(S.R.)B14 14.90
Economy,Pa.(D.R.)B14 18.55
Economy(Staybolt)B14 19.00

BARS, Rail Steel

ChicagoHts.(3) C2, I-2 .5.575
ChicagoHts.(4)(44) I-2 .5.675
ChicagoHts.(4) C2 ....5.675
Franklin,Pa.(3) F5 ....5.575
Franklin,Pa.(4) F5 ....5.675
JerseyShore,Pa.(3) J8 ..5.55
Marion,O.(3) P11 .....5.575
Tonawanda(3) B12 ....5.575
Tonawanda(4) B12 ....6.10

SHEETS

SHEETS, Hot-Rolled Steel (18 Gage and Heavier)

AlabamaCity,Ala. R2 ..5.10
Allenport,Pa. P7 .....5.10
Aliquippa,Pa. J5 .....5.10
Ashland,Ky.(8) A10 ...5.10
Cleveland J5, R2 .....5.10
Conshohocken,Pa. A3 ..5.15
Detroit(8) M1 .....5.10
Ecorse,Mich. G5 .....5.10
Fairfield,Ala. T2 .....5.10
Fairless,Pa. U5 .....5.15
Farrell,Pa. S3 .....5.10
Fontana,Calif. K1 ....5.825
Gary,Ind. U5 .....5.10
Geneva,Utah C11 .....5.20
GraniteCity,Ill.(8) G4 ..5.20
Ind.Harbor,Ind. I-2, Y1 .5.10
Irvin,Pa. U5 .....5.10
Lackawanna,N.Y. B2 ..5.10
Mansfield,O. E6 .....5.10
Munhall,Pa. U5 .....5.10
Newport,Ky. A2 .....5.10
Niles,O. M21, S3 .....5.10
Pittsburg,Calif. C11 ..5.80
Pittsburgh J5 .....5.10
Portsmouth,O. P12 .....5.10
Riverdale,Ill. A1 .....5.10
Sharon,Pa. S3 .....5.10
S.Chicago,Ill. U5, W14 .5.10
SparrowsPoint,Md. B2 ..5.10
Steubenville,O. W10 ....5.10
Warren,O. R2 .....5.10
Weirton,W.Va. W6 ....5.10
Youngstown U5, Y1 ....5.10

SHEETS, H.R. (19 Ga. & Lighter)

Niles,O. M21, S3 ..... 6.275

SHEETS, H.R. Alloy

Gary,Ind. U5 .....8.40
Ind.Harbor,Ind. Y1 ....8.40
Irvin,Pa. U5 .....8.40
Munhall,Pa. U5 .....8.40
Newport,Ky. A2 .....8.40
Youngstown U5, Y1 ....8.40

SHEETS, H.R. (14 Ga. & Heavier) High-Strength, Low-Alloy

Aliquippa,Pa. J5 .....7.525
Ashland,Ky. A10 .....7.525
Cleveland J5, R2 .....7.525
Conshohocken,Pa. A3 ..7.575
Ecorse,Mich. G5 .....7.525
Fairfield,Ala. T2 .....7.525
Fairless,Pa. U5 .....7.575
Farrell,Pa. S3 .....7.525
Fontana,Calif. K1 .....8.25
Gary,Ind. U5 .....7.525
Ind.Harbor,Ind. I-2, Y1 .7.525
Irvin,Pa. U5 .....7.525
Lackawanna(35) B2 ..7.525
Munhall,Pa. U5 .....7.525
Niles,O. S3 .....7.525
Pittsburgh J5 .....7.525
S.Chicago,Ill. U5, W14 .7.525
Sharon,Pa. S3 .....7.525
SparrowsPoint(36) B2..7.525
Warren,O. R2 .....7.525
Weirton,W.Va. W6 ....7.525
Youngstown U5, Y1 ..7.525

SHEETS, Hot-Rolled Ingot Iron (18 Gage and Heavier)

Ashland,Ky.(8) A10 ....5.35
Cleveland R2 .....5.875
Warren,O. R2 .....5.875

SHEETS, Cold-Rolled Ingot Iron

Cleveland R2 .....7.05
Middletown,O. A10 ....6.775
Warren,O. R2 .....7.05

SHEETS, Cold-Rolled Steel (Commercial Quality)

AlabamaCity,Ala. R2 ..6.275
Allenport,Pa. P7 .....6.275
Aliquippa,Pa. J5 .....6.275
Cleveland J5, R2 .....6.275
Conshohocken,Pa. A3 ..6.325
Detroit M1 .....6.275
Ecorse,Mich. G5 .....6.275
Fairfield,Ala. T2 .....6.275
Fairless,Pa. U5 .....6.325
Follansbee,W.Va. F4 ..6.275
Fontana,Calif. K1 ....7.40
Gary,Ind. U5 .....6.275
GraniteCity,Ill. G4 ....6.375
Ind.Harbor,Ind. I-2, Y1 .6.275
Irvin,Pa. U5 .....6.275
Lackawanna,N.Y. B2 ..6.275
Mansfield,O. E6 .....6.275
Middletown,O. A10 ....6.275
Newport,Ky. A2 .....6.275
Pittsburg,Calif. C11 ..7.225
Pittsburgh J5 .....6.275
Portsmouth,O. P12 .....6.275
SparrowsPoint,Md. B2..6.275
Steubenville,O. W10 ....6.275
Warren,O. R2 .....6.275
Weirton,W.Va. W6 ....6.275
Yorkville,O. W10 .....6.275
Youngstown Y1 .....6.275

SHEETS, Cold-Rolled, High-Strength, Low-Alloy

Aliquippa,Pa. J5 .....9.275
Cleveland J5, R2 .....9.275
Ecorse,Mich. G5 .....9.275
Fairless,Pa. U5 .....9.325
Fontana,Calif. K1 .....10.40
Gary,Ind. U5 .....9.275
Ind.Harbor,Ind. I-2, Y1 .9.275
Irvin,Pa. U5 .....9.275
Lackawanna(37) B2 ..9.275
Pittsburgh J5 .....9.275
SparrowsPoint(38) B2..9.275
Warren,O. R2 .....9.275
Weirton,W.Va. W6 ....9.275
Youngstown Y1 .....9.275

SHEETS, Culvert

	Cu Steel	Cu Fe
Ala.City,Ala. R2	7.225	....
Ashland,Ky. A10	7.225	7.475
Canton,O. R2	7.225	7.75
Fairfield T2	7.225	7.475
Gary,Ind. U5	7.225	7.475
GraniteCity,Ill.G4	7.325	....
Ind.Harbor I-2	7.225	7.475
Irvin,Pa. U5	7.225	7.475
Kokomo,Ind. C16	7.325	....
MartinsFry. W10	7.225	7.475
Pitts.,Calif. C11	7.975	....
SparrowsPt. B2	7.225	....
Pittsburgh J5	7.225	....

SHEETS, Culvert—Pure Iron

Ind.Harbor,Ind. I-2 ....7.475

SHEETS, Galvanized Steel Hot-Dipped

AlabamaCity,Ala. R2 ..6.875‡
Ashland,Ky. A10 .....6.875‡
Canton,O. R2 .....6.875‡
Dover,O. E6 .....6.875‡
Fairfield,Ala. T2 .....6.875‡
Gary,Ind. U5 .....6.875‡
GraniteCity,Ill. G4 ...6.975*
Ind.Harbor,Ind. I-2 ..6.875‡
Irvin,Pa. U5 .....6.875‡
Kokomo,Ind. C16 ....6.975‡
MartinsFerry,O. W10 .6.875*
Middletown,O. A10 ..6.875‡
Pittsburg,Calif. C11 ..7.625*
Pittsburgh J5 .....6.875‡
SparrowsPt.,Md. B2 ..6.875‡
Warren,O. R2 .....6.875‡
Weirton,W.Va. W6 ....6.875*

*Continuous and noncontinuous. †Continuous. ‡Noncontinuous.

SHEETS, Well Casing

Fontana,Calif. K1 ....7.325

SHEETS, Galvanized High-Strength, Low-Alloy

Irvin,Pa. U5 .....10.125
SparrowsPt.(39) B2 ..10.025
Pittsburgh J5 .....10.125

SHEETS, Galvannealed Steel

Canton,O. R2 .....7.275
Irvin,Pa. U5 .....7.275

SHEETS, Galvanized Ingot Iron (Hot-Dipped Continuous)

Ashland,Ky. A10 .....7.125
Middletown,O. A10 ....7.125

SHEETS, Electrogalvanized

Cleveland(28) R2 .....7.65
Niles,O.(28) R2 .....7.65
Youngstown J5 .....7.50
Weirton,W.Va. W6 .....7.50

SHEETS, Aluminum Coated

Butler,Pa. A10 (type 1) 9.525
Butler,Pa. A10 (type 2) 9.625

SHEETS, Enameling Iron

Ashland,Ky. A10 .....6.775
Cleveland R2 .....6.775
Fairfield,Ala. T2 .....6.775
Gary,Ind. U5 .....6.775
GraniteCity,Ill. G4 ....6.875
Ind.Harbor,Ind. I-2,Y1 .6.775
Irvin,Pa. U5 .....6.775
Middletown,O. A10 ....6.775
Niles,O. M21, S3 .....6.775
Youngstown Y1 .....6.775

BLUED STOCK, 29 Gage

Dover,O. E6 .....8.70
Follansbee,W.Va. F4 ...8.70
Ind.Harbor,Ind. I-2 ....8.70
Mansfield,O. E6 .....8.70
Warren,O. R2 .....8.70
Yorkville,O. W10 .....8.70

SHEETS, Long Terne, Steel (Commercial Quality)

BeechBottom,W.Va.W10 7.225
Gary,Ind. U5 .....7.225
Mansfield,O. E6 .....7.225
Middletown,O. A10 ....7.225
Niles,O. M21, S3 .....7.225
Warren,O. R2 .....7.225
Weirton,W.Va. W6 ....7.225

SHEETS, Long Terne, Ingot Iron

Middletown,O. A10 ....7.625

Key To Producers

A1 Acme Steel Co.
A2 Acme-Newport Steel Co.
A3 Alan Wood Steel Co.
A4 Allegheny Ludlum Steel
A5 Alloy Metal Wire Div., H. K. Porter Co. Inc.
A6 American Shim Steel Co.
A7 American Steel & Wire Div., U. S. Steel Corp.
A8 Anchor Drawn Steel Co.
A9 Angell Nail & Chaplet
A10 Armco Steel Corp.
A11 Atlantic Steel Co.

B1 Babcock & Wilcox Co.
B2 Bethlehem Steel Co.
B3 Beth. Pac. Coast Steel
B4 Blair Strip Steel Co.
B5 Bliss & Laughlin Inc.
B8 Braeburn Alloy Steel
B9 Brainard Steel Div., Sharon Steel Corp.
B10 E. & G. Brooke. Wickwire Spencer Steel Div., Colo. Fuel & Iron
B11 Buffalo Bolt Co., Div., Buffalo Eclipse Corp.
B12 Buffalo Steel Corp.
B14 A. M. Byers Co.
B15 J. Bishop & Co.

C1 Calstrip Steel Corp.
C2 Calumet Steel Div., Borg-Warner Corp.
C4 Carpenter Steel Co.
C9 Colonial Steel Co.
C10 Colorado Fuel & Iron
C11 Columbia-Geneva Steel
C12 Columbia Steel & Shaft.
C13 Columbia Tool Steel Co.
C14 Compressed Steel Shaft.
C15 Connors Steel Div., H. K. Porter Co. Inc.
C16 Continental Steel Corp.
C17 Copperweld Steel Co.
C18 Crucible Steel Co.
C19 Cumberland Steel Co.
C20 Cuyahoga Steel & Wire
C22 Claymont Plant, Wickwire Spencer Steel Div., Colo. Fuel & Iron
C23 Charter Wire Inc.
C24 G. O. Carlson Inc.
C32 Carpenter Steel of N.Eng.

D2 Detroit Steel Corp.
D4 Disston Div., H. K. Porter Co. Inc.
D6 Driver-Harris Co.
D7 Dickson Weatherproof Nail Co.
D8 Damascus Tube Co.
D9 Wilbur B. Driver Co.

E1 Eastern Gas & Fuel Assoc.
E2 Eastern Stainless Steel
E4 Electro Metallurgical Co.
E5 Elliott Bros. Steel Co.
E6 Empire-Reeves Steel Corp.
E10 Enamel Prod. & Plating

F2 Firth Sterling Inc.
F3 Fitzsimmons Steel Co.
F4 Follansbee Steel Corp.
F5 Franklin Steel Div., Borg-Warner Corp.
F6 Fretz-Moon Tube Co.
F7 Ft. Howard Steel & Wire
F8 Ft. Wayne Metals Inc.

G4 Granite City Steel Co.
G5 Great Lakes Steel Corp.
G6 Greer Steel Co.
G8 Green River Steel Corp.

H1 Hanna Furnace Corp.
H7 Helical Tube Co.

I-1 Igoe Bros. Inc.
I-2 Inland Steel Co.
I-3 Interlake Iron Corp.
I-4 Ingersoll Steel Div., Borg-Warner Corp.
I-6 Ivins Steel Tube Works
I-7 Indiana Steel & Wire Co.

J1 Jackson Iron & Steel Co.
J3 Jessop Steel Co.
J4 Johnson Steel & Wire Co.
J5 Jones & Laughlin Steel
J6 Joslyn Mfg. & Supply
J7 Judson Steel Corp.
J8 Jersey Shore Steel Co.

K1 Kaiser Steel Corp.
K2 Keokuk Electro-Metals
K3 Keystone Drawn Steel
K4 Keystone Steel & Wire
K7 Kenmore Metals Corp.

L1 Laclede Steel Co.
L2 LaSalle Steel Co.
L3 Latrobe Steel Co.
L6 Lone Star Steel Co.
L7 Lukens Steel Co.
L8 Leschen Wire Rope Div., H. K. Porter Co. Inc.

M1 McLouth Steel Corp.
M4 Mahoning Valley Steel
M6 Mercer Pipe Div., Sawhill Tubular Products
M8 Mid-States Steel & Wire
M12 Moltrup Steel Products
M14 McInnes Steel Co.
M16 Md. Fine & Special. Wire
M17 Metal Forming Corp.
M18 Milton Steel Div., Merritt-Chapman & Scott
M21 Mallory-Sharon Metals Corp.
M22 Mill Strip Products Co.

N1 National-Standard Co.
N2 National Supply Co.
N3 National Tube Div., U. S. Steel Corp.
N5 Nelsen Steel & Wire Co.
N6 New England High Carbon Wire Co.
N8 Newman-Crosby Steel
N14 Northwest. Steel Rolling Mills Inc.
N15 Northwestern S.&W. Co.
N20 Neville Ferro Alloy Co.

O4 Oregon Steel Mills

P1 Pacific States Steel Corp.
P2 Pacific Tube Co.
P4 Phoenix Iron & Steel Co., Sub. of Barium Steel Corp.
P5 Pilgrim Drawn Steel
P6 Pittsburgh Coke & Chem.
P7 Pittsburgh Steel Co.
P11 Pollak Steel Co.
P12 Portsmouth Div., Detroit Steel Corp.
P13 Precision Drawn Steel
P14 Pitts. Screw & Bolt Co.
P15 Pittsburgh Metallurgical
P16 Page Steel & Wire Div., American Chain & Cable
P17 Plymouth Steel Corp.
P19 Pitts. Rolling Mills
P20 Prod. Steel Strip Corp.
P22 Phoenix Mfg. Co.
P24 Phil. Steel & Wire Corp.

R2 Republic Steel Corp.
R3 Rhode Island Steel Corp.
R5 Roebling's Sons, John A.
R6 Rome Strip Steel Co.
R8 Reliance Div., Eaton Mfg.
R9 Rome Mfg. Co.
R10 Rodney Metals Inc.

S1 Seneca Wire & Mfg. Co.
S3 Sharon Steel Corp.
S4 Sharon Tube Co.
S5 Sheffield Div., Armco Steel Corp.
S6 Shenango Furnace Co.
S7 Simmons Co.
S8 Simonds Saw & Steel Co.
S12 Spencer Wire Corp.
S13 Standard Forgings Corp.
S14 Standard Tube Co.
S15 Stanley Works
S17 Superior Drawn Steel Co.
S18 Superior Steel Div., Copperweld Steel Co.
S19 Sweet's Steel Co.
S20 Southern States Steel
S23 Superior Tube Co.
S25 Stainless Welded Prod.
S26 Specialty Wire Co. Inc.
S30 Sierra Drawn Steel Corp.
S40 Seneca Steel Service
S41 Stainless & Strip Div., J&L Steel Corp.
S42 Southern Elec. Steel Co.

T2 Tenn. Coal & Iron Div., U. S. Steel Corp.
T3 Tenn. Products & Chemical Corp.
T4 Texas Steel Co.
T5 Thomas Strip Div., Pittsburgh Steel Co.
T6 Thompson Wire Co.
T7 Timken Roller Bearing
T9 Tonawanda Iron Div., Am. Rad. & Stan. San.
T13 Tube Methods Inc.
T19 Techalloy Co. Inc.

U3 Union Wire Rope Corp.
U4 Universal-Cyclops Steel
U5 United States Steel Corp.
U6 U. S. Pipe & Foundry
U7 Ulbrich Stainless Steels
U8 U. S. Steel Supply Div., U. S. Steel Corp.

V2 Vanadium-Alloys Steel
V3 Vulcan-Kidd Steel Div., H. K. Porter Co.

W1 Wallace Barnes Steel Div., Associated Spring Corp.
W2 Wallingford Steel Co.
W3 Washburn Wire Co.
W4 Washington Steel Corp.
W6 Weirton Steel Co.
W8 Western Automatic Machine Screw Co.
W9 Wheatland Tube Co.
W10 Wheeling Steel Corp.
W12 Wickwire Spencer Steel Div., Colo. Fuel & Iron
W13 Wilson Steel & Wire Co.
W14 Wisconsin Steel Div., International Harvester
W15 Woodward Iron Co.
W18 Wyckoff Steel Co.

Y1 Youngstown Sheet & Tube

STRIP

STRIP, Hot-Rolled Carbon

Ala.City,Ala.(27) R2	.5.10
Allenport,Pa. P7	.5.10
Alton,Ill. L1	.5.30
Ashland,Ky.(8) A10	.5.10
Atlanta A11	.5.10
Bessemer,Ala. T2	.5.10
Birmingham C15	.5.10
Buffalo(27) R2	.5.10
Conshohocken,Pa. A3	.5.15
Detroit M1	.5.10
Ecorse,Mich. G5	.5.10
Fairfield,Ala. T2	.5.10
Farrell,Pa. S3	.5.10
Fontana,Calif. K1	.5.825
Gary,Ind. U5	.5.10
Ind.Harbor,Ind. I-2, Y1	.5.10
Johnstown,Pa.(25) B2 N5	.10
Lackaw'na,N.Y.(25) B2	.5.10
LosAngeles(25) B3	.5.85
LosAngeles C1	.8.60
Minnequa,Colo. C10	.6.20
Riverdale,Ill. A1	.5.10
SanFrancisco S7	.6.60
Seattle(25) B3	.6.10
Seattle N14	.6.60
Sharon,Pa. S3	.5.10
S.Chicago W14	.5.10
S.SanFrancisco(25) B3	.5.85
SparrowsPoint,Md. B2	.5.10
Torrance,Calif. C11	.5.85
Warren,O. R2	.5.10
Weirton,W.Va. W6	.5.10
Youngstown U5	.5.10

STRIP, Hot-Rolled Alloy

Carnegie,Pa. S18	.8.40
Farrell,Pa. S3	.8.40
Gary,Ind. U5	.8.40
Houston S5	.8.65
Ind.Harbor,Ind. Y1	.8.40
KansasCity,Mo. S5	.8.65
LosAngeles B3	.9.60
Lowellville,O. S3	.8.40
Newport,Ky. A2	.8.40
Sharon,Pa. A2, S3	.8.40
S.Chicago,Ill. W14	.8.40
Youngstown U5, Y1	.8.40

STRIP, Hot-Rolled High-Strength, Low-Alloy

Ashland,Ky. A10	.7.575
Bessemer,Ala. T2	.7.575
Conshohocken,Pa. A3	.7.575
Ecorse,Mich. G5	.7.575
Fairfield,Ala. T2	.7.575
Farrell,Pa. S3	.7.575
Gary,Ind. U5	.7.575
Ind.Harbor,Ind. I-2,Y1	7.575
Lackawanna,N.Y. B2	.7.575
LosAngeles(25) B3	.8.325
Seattle(25) B3	.8.575
Sharon,Pa. S3	.7.575
S.Chicago,Ill. W14	.7.575
S.SanFrancisco(25) B3	8.325
SparrowsPoint,Md. B2	7.575
Warren,O. R2	.7.575
Weirton,W.Va. W6	.7.575
Youngstown U5, Y1	.7.575

STRIP, Hot-Rolled Ingot Iron

Ashland,Ky.(8) A10	.5.35
Warren,O. R2	.5.875

STRIP, Cold-Rolled Carbon

Anderson,Ind. G6	.7.425
Baltimore T6	.7.425
Boston T6	.7.975
Buffalo S10	.7.425
Cleveland A7, J5	.7.425
Dearborn,Mich. S3	.7.425
Detroit D2, M1, P20	.7.425
Dover,O. G6	.7.425
Evanston,Ill. M22	.7.525
Farrell,Pa. S3	.7.425
Follansbee,W.Va. F1	.7.425
Fontana,Calif. K1	.9.20
FranklinPark,Ill. T6	.7.525
Ind.Harbor,Ind. Y1	.7.425
Indianapolis S4I	.7.575
LosAngeles J5	.9.325
Los Angeles C1	.9.30
McKeesport,Pa. E10	.7.525
NewBedford,Mass. R10	7.875
NewBritain,Conn. S15	.7.875
NewCastle,Pa. B4, E5	7.425
NewHaven,Conn. D2	.7.875
NewKensington,Pa. A6	7.425
Pawtucket,R.I. R3	.7.975
Pawtucket,R.I. N8	.7.975
Philadelphia P24	.7.875
Pittsburgh J5	.7.425
Riverdale,Ill. A1	.7.525
Rome,N.Y.(32) R6	.7.425
Sharon,Pa. S3	.7.425
Trenton,N.J.(31) R5	.8.875
Wallingford,Conn. W2	.7.875
Warren,O. R2, T5	.7.425
Worcester,Mass. A7	.7.975
Youngstown S41, Y1	.7.425

STRIP, Cold-Rolled Alloy

Boston T6	.15.90
Carnegie,Pa. S18	.15.55
Cleveland A7	.15.55
Dover,O. G6	.15.55
Farrell,Pa. S3	.15.55
FranklinPark,Ill. T6	.15.55
Harrison,N.J. C18	.15.55
Indianapolis S41	.15.70
Lowellville,O. S3	.15.55
Pawtucket,R.I. N8	.15.90
Riverdale,Ill. A1	.15.55
Sharon,Pa. S3	.15.55
Worcester,Mass. A7	.15.85
Youngstown S41	.15.55

STRIP, Cold-Rolled High-Strength, Low-Alloy

Cleveland A7	.10.80
Dearborn,Mich. S3	.10.80
Dover,O. G6	.10.80
Farrell,Pa. S3	.10.80
Ind.Harbor,Ind. Y1	.10.80
Sharon,Pa. S3	.10.80
Warren,O. R2	.10.80

STRIP, Cold-Finished Spring Steel (Annealed)	0.26-0.40C	0.41-0.60C	0.61-0.80C	0.81-1.05C	1.06-1.35C
Baltimore T6	9.50	10.70	12.90	15.90	18.85
Boston T6	9.50	10.70	12.90	15.90	18.85
Bristol,Conn. W1	...	10.70	12.90	16.10	19.30
Carnegie,Pa. S18	8.95	10.40	12.60	15.60	....
Cleveland A7	8.95	10.40	12.60	15.60	18.55
Dearborn,Mich. S3	9.05	10.50	12.70	....	....
Detroit D2	9.05	10.50	12.70	15.70	....
Dover,O. G6	8.95	10.40	12.60	15.60	18.55
Evanston,Ill. M22	8.95	10.40	12.60	15.60	....
Farrell,Pa. S3	8.95	10.40	12.60	15.60	18.55
Fostoria,O. S1	10.05	10.40	12.60	15.60	....
FranklinPark,Ill. T6	9.05	10.40	12.60	15.60	18.55
Harrison,N.J. C18	....	....	12.90	16.10	19.30
Indianapolis S41	....	9.10	10.55	12.60	15.60	18.55
LosAngeles C1	....	11.15	12.60	14.80	17.80	....
LosAngeles J5	....	11.15	12.60	14.80	....	....
NewBritain,Conn. S15	....	9.40	10.70	12.90	15.90	18.85
NewCastle,Pa. B4, E5	....	8.95	10.40	12.60	15.60	....
NewHaven,Conn. D2	....	9.40	10.70	12.90	15.90	....
NewKensington,Pa. A6	....	8.95	10.40	12.60	15.60	....
New York W3	....	....	10.70	12.90	16.10	19.30
Pawtucket,R.I. N8	....	9.50	10.70	12.90	15.90	18.85
Riverdale,Ill. A1	....	9.05	10.40	12.60	15.60	18.55
Rome,N.Y.(32) R6	....	8.95	10.40	12.60	15.60	18.55
Sharon,Pa. S3	....	8.95	10.40	12.60	15.60	18.55
Trenton,N.J. R5	....	....	10.70	12.90	15.90	18.85
Wallingford,Conn. W2	....	9.40	10.70	12.90	15.90	18.75
Warren,O. T5	....	8.95	10.40	12.60	15.60	18.55
Worcester,Mass. A7, T6	....	9.50	10.70	12.90	15.90	18.85
Youngstown S41	....	8.95	10.40	12.60	15.60	18.55

Spring Steel (Tempered)	Up to 0.80C	0.81-1.05C	1.06-1.35C
Bristol,Conn. W1	....	18.85	22.95	27.80
Buffalo W12	....	18.85	....	....
Fostoria,O. S1	....	19.05	22.15	....
FranklinPark,Ill. T6	....	19.20	23.30	28.15
Harrison,N.J. C18	....	18.85	22.95	27.80
NewYork W3	....	18.85	22.95	27.80
Palmer,Mass. W12	....	18.85	....	....
Trenton,N.J. R5	....	18.85	22.95	27.80
Worcester,Mass. A7, T6	....	18.85	22.95	27.80
Youngstown S41	....	19.20	23.30	28.15

STRIP, Cold-Rolled Ingot Iron

Warren,O. R2	.8.175

STRIP, C.R. Electrogalvanized

Cleveland A7	.7.425*
Dover,O. G6	.7.425*
Evanston,Ill. M22	.7.525*
McKeesport,Pa. E10	.7.50*
Riverdale,Ill. A1	.7.525*
Warren,O. B9, S3, T5	7.425*
Worcester,Mass. A7	.7.975
Youngstown S41	.7.425*

*Plus galvanizing extras.

STRIP, Galvanized (Continuous)

Farrell,Pa. S3	.7.50
Sharon,Pa. S3	.7.50

TIGHT COOPERAGE HOOP

Atlanta A11	.5.65
Farrell, Pa. S3	.5.525
Riverdale,Ill. A1	.5.675
Sharon,Pa. S3	.5.525
Youngstown U5	.5.525

TIN MILL PRODUCTS

TIN PLATE, Electrolytic (Base Box)	0.25 lb	0.50 lb	0.75 lb
Aliquippa,Pa. J5	*$9.10*	*$9.35*	*$9.75*
Fairfield,Ala. T2	*9.20*	*9.45*	*9.85*
Fairless,Pa. U5	*9.20*	*9.45*	*9.85*
Fontana,Calif. K1	*9.75*	*10.00*	*10.40*
Gary,Ind. U5	*9.10*	*9.35*	*9.75*
GraniteCity,Ill. G4	*9.20*	*9.45*	*9.60*
IndianaHarbor,Ind. I-2, Y1	*9.10*	*9.35*	*9.75*
Irvin,Pa. U5	*9.10*	*9.35*	*9.75*
Niles,O. R2	*9.10*	*9.35*	*9.75*
Pittsburg,Calif. C11	*9.75*	*10.00*	*10.40*
SparrowsPoint,Md. B2	*9.10*	*9.35*	*9.75*
Yorkville,O. W10	*9.10*	*9.35*	*9.75*

ELECTROTIN (22-27 Gage; Dollars per 100 lb)

Aliquippa, Pa. J5	7.725	7.925	....
Niles,O. R2	7.725	7.925	8.125

TIN PLATE, American	1.25 lb	1.50 lb
Aliquippa,Pa.J5	*$10.10*	*$10.65*
Fairfield,Ala. T2	*10.50*	*10.75*
Fairless,Pa. U5	*10.50*	*10.75*
Fontana,Calif.K1	*11.05*	*11.30*
Gary,Ind. U5	*10.40*	*10.65*
Ind.Harb. Y1	*10.40*	*10.65*
Pitts.,Calif. C11	*11.05*	*11.30*
Sp.Pt.,Md. B2	*10.40*	*10.65*
Weirton,W.Va.W6	*10.40*	*10.65*
Yorkville,O. W10	*10.40*	*10.65*

BLACK PLATE (Base Box)

Aliquippa,Pa. J5	*$8.20*
Fairfield,Ala. T2	*8.30*
Fairless,Pa. U5	*8.30*
Fontana,Calif. K1	*8.85*
Gary,Ind. U5	*8.20*
GraniteCity,Ill. G4	*8.30*
Ind.Harbor,Ind. I-2, Y1	*8.20*
Irvin,Pa. U5	*8.20*
Niles,O. R2	*8.20*
Pittsburg,Calif. C11	*8.85*
SparrowsPoint,Md. B2	*8.20*
Weirton,W.Va. W6	*8.20*
Yorkville,O. W10	*8.20*

HOLLOWARE ENAMELING Black Plate (29 Gage)

Aliquippa,Pa. J5	*7.85*
Gary,Ind. U5	*7.85*
GraniteCity,Ill. G4	*7.95*
Ind.Harbor,Ind. Y1	*7.85*
Irvin,Pa. U5	*7.85*
Yorkville,O. W10	*7.85*

MANUFACTURING TERNES (Special Coated, Base Box)

Gary,Ind. U5	$9.70
Irvin,Pa. U5	9.70

ROOFING SHORT TERNES (8 lb Coated, Base Box)

Gary,Ind. U5	$11.25

SILICON STEEL

C.R. COILS & CUT LENGTHS (22 Ga.)

Fully Processed (Semiprocessed ½c lower)	Field	Armature	Electric	Motor	Dynamo
BeechBottom,W.Va. W10	....	11.70	12.40	13.55	14.65
Brackenridge,Pa. A4	....	....	12.40	13.55	14.65
GraniteCity,Ill. G4	9.975*	11.30*	12.00*	13.15*	....
IndianaHarbor,Ind. I-2	9.875*	11.20*	11.90*	13.05*	....
Mansfield,O. E6	9.875*	11.70	12.40	13.55	14.65
Newport,Ky. A2	9.875	11.70*	12.40*	13.55*	14.65*
Niles,O. M21	9.875*	11.70	12.40	13.55	....
Vandergrift,Pa. U5	9.875*	11.70	12.40	13.55	14.65
Warren,O. R2	9.875*	11.70	12.40	13.55	14.65
Zanesville,O. A10	....	11.70†	12.40	13.55	14.65

	Stator
Vandergrift,Pa. U5	8.10
Mansfield,O. E6	8.10

SHEETS (22 Ga., coils & cut lengths)	T-72	T-65	T-58	T-52
Fully Processed (Semiprocessed ½c lower)				
BeechBottom,W.Va. W10	15.70	16.30	16.80	17.85
Vandergrift,Pa. U5	15.70	16.30	16.80	17.85
Zanesville,O. A10	15.70	16.30	16.80	17.85

C.R. COILS & CUT LENGTHS (22 Ga.)	Grain Oriented T-100	T-90	T-80	T-73	T-66	T-72
Brackenridge,Pa. A4	....	18.10	19.70	20.20	20.70	15.70††
Butler,Pa. A10	....	....	....	19.70	20.20	20.70	....
Vandergrift,Pa. U5	..	17.10	18.10	19.70	20.20	20.70	15.70
Warren,O. R2	....	....	....	....	....	....	15.70‡

*Semiprocessed. †Fully processed only. ‡Coils, annealed, semiprocessed ½c lower. ††Coils only.

WIRE

WIRE, Manufacturers Bright, Low Carbon

AlabamaCity,Ala. R2	.8.00
Aliquippa,Pa. J5	.8.00
Alton,Ill. L1	.8.20
Atlanta A1	.8.00
Bartonville,Ill. K4	.8.10
Buffalo W12	.8.00
Chicago W13	.8.00
Cleveland A7, C20	.8.00
Crawfordsville,Ind. MS	.8.10
Donora,Pa. A7	.8.00
Duluth A7	.8.00
Fairfield,Ala. T2	.8.00
Fostoria,O.(24) S1	.8.10
Houston S5	.8.25
Jacksonville,Fla. M8	.8.35
Johnstown,Pa. B2	.8.00
Joliet,Ill. A7	.8.00
KansasCity,Mo. S5	.8.25
Kokomo,Ind. C16	.8.10
LosAngeles B3	.8.95
Minnequa,Colo. C10	.8.25
Monessen,Pa. P7, P16	.8.00
N.Tonawanda,N.Y. B11	.8.00
Palmer,Mass. W12	.8.30
Pittsburg,Calif. C11	.8.95
Portsmouth,O. P12	.8.00
Rankin,Pa. A7	.8.00
S.Chicago,Ill. R2	.8.00
S.SanFrancisco C10	.8.95
SparrowsPoint,Md. B2	.8.10
Sterling,Ill.(1) N15	.8.00
Sterling,Ill. N15	.8.10
Struthers,O. Y1	.8.00
Waukegan,Ill. A7	.8.00
Worcester,Mass. A7	.8.30

WIRE, Cold Heading Carbon

Elyria,O. W8	.8.00

WIRE, Gal'd., for ACSR

Bartonville,Ill. K4	.12.65
Buffalo W12	.13.40
Cleveland A7	.12.65
Donora,Pa. A7	.12.65
Duluth A7	.12.65
Johnstown,Pa. B2	.13.40
Minnequa,Colo. C10	.12.775
Monessen,Pa. P16	.12.65
Monessen,Pa. P7	.12.65
Muncie,Ind. I-7	.13.60
NewHaven,Conn. A7	12.95
Palmer,Mass. W12	.13.70
Pittsburg,Calif. C11	.13.45
Portsmouth,O. P12	.12.65
Roebling,N.J. R5	.12.95
SparrowsPt.,Md. B2	.13.50
Struthers,O. Y1	.13.40
Trenton,N.J. A7	.12.95
Waukegan,Ill. A7	.12.65
Worcester,Mass. A7	.12.95

WIRE Upholstery Spring

Aliquippa,Pa. J5	.9.75
Alton,Ill. L1	.9.95
Buffalo W12	.9.75
Cleveland A7	.9.75
Donora,Pa. A7	.9.75
Duluth A7	.9.75
Johnstown,Pa. B2	.9.75
KansasCity,Mo. S5	.10.00
LosAngeles B3	.10.70
Minnequa,Colo. C10	.9.95
Monessen,Pa. P7, P16	.9.75
NewHaven,Conn. A7	.10.05
Palmer,Mass. W12	.10.05
Pittsburg,Calif. C11	.10.70
Portsmouth,O. P12	.9.75
Roebling,N.J. R5	.10.05
S.Chicago,Ill. R2	.9.75
S.SanFrancisco C10	.10.70
SparrowsPt.,Md. B2	.9.85
Struthers,O. Y1	.9.75
Trenton,N.J. A7	.10.05
Waukegan,Ill. A7	.9.75
Worcester,Mass. A7,J4,T6	10.05

WIRE, MB Spring, High-Carbon

Aliquippa,Pa. J5	.9.75
Alton,Ill. L1	.9.95
Bartonville,Ill. K4	.9.85
Buffalo W12	.9.75
Cleveland A7	.9.75
Donora,Pa. A7	.9.75
Duluth A7	.9.75
Fostoria,O. S1	.9.80
Johnstown,Pa. B2	.9.75
KansasCity,Mo. S5	.10.00
LosAngeles B3	.10.70
Milbury,Mass.(12) N6	.10.05
Minnequa,Colo. C10	.9.95
Monessen Pa. P7, P16	.9.75
Muncie,Ind. I-7	.9.95
Palmer,Mass. W12	.10.05
Pittsburg,Calif. C11	.10.70
Portsmouth,O. P12	.9.75
Roebling,N.J. R5	.10.05
S.SanFrancisco C10	.10.70
SparrowsPt.,Md. B2	.9.85
Struthers,O. Y1	.9.75
Trenton,N.J. A7	.10.05
Waukegan,Ill. A7	.9.75
Wor'ster,Mass.A7,J4,T6	10.05

WIRE, Fine & Weaving(8" Coils)

Alton,Ill. L1	.16.50
Bartonville,Ill. K4	.16.40
Chicago W13	.16.30
Cleveland A7	.16.30
Crawfordsville,Ind. MS	16.40
Fostoria,O. S1	.16.30
Houston S5	.16.55
Jacksonville,Fla. M8	.16.65
Johnstown,Pa. B2	.16.30
KansasCity,Mo. S5	.16.55
Kokomo,Ind. C16	.16.30
Minnequa,Colo. C10	.16.55
Monessen,Pa. P16	.16.30
Muncie,Ind. I-7	.16.50
Palmer,Mass. W12	.16.60
S.SanFrancisco C10	.17.15
Waukegan,Ill. A7	.16.30
Worcester,Mass. A7, J6	16.60

WIRE, Tire Bead

Bartonville,Ill. K4	.17.15
Monessen,Pa. P16	.17.15
Roebling,N.J. R5	.17.65

ROPE WIRE (A)

Bartonville,Ill. K4	.13.45
Buffalo W12	.13.45
Fostoria,O. S1	.13.45
Johnstown,Pa. B2	.13.45
Monessen,Pa. P7	.13.45
Muncie,Ind. I-7	.13.65
Palmer,Mass. W12	.13.75
Portsmouth,O. P12	.13.45
Roebling,N.J. R5	.13.75
St.Louis L8	.12.75
SparrowsPt.,Md. B2	.13.55
Struthers,O. Y1	.13.45
Worcester,Mass. J4	.13.75

(A) Plow and Mild Plow; add 0.25c for Improved Plow

WIRE, Cold-Rolled Flat

Anderson,Ind. G6 ....12.35
Baltimore T6 .....12.65
Boston T6 .....12.65
Buffalo W12 .....12.35
Chicago W13 .....12.45
Cleveland A7 .....12.35
Crawfordsville,Ind. M8..12.35
Dover,O. G6 .....12.35
Farrell,Pa. S3 .....11.65
Fostoria,O. S1 .....12.35
FranklinPark,Ill. T6 ..12.45
Kokomo,Ind. C16 ....12.35
Massillon,O. R8 .....12.35
Milwaukee C23 .....12.55
Monessen,Pa. P7, P16..12.35
Palmer,Mass. W12 ....12.65
Pawtucket,R.I. N8 ....11.95
Philadelphia P24 ....12.65
Riverdale,Ill. A1 ....12.45
Rome,N. Y. R6 .....12.35
Sharon,Pa. S3 .....12.35
Trenton,N.J. R5 ....12.65
Warren,O. B9 .....12.35
Worcester,Mass. A7,T6.12.65

NAILS, Stock **Col.**

AlabamaCity,Ala. R2 ...173
Aliquippa,Pa. J5 173
Atlanta A11 175
Bartonville,Ill. K4 175
Chicago W13 173
Cleveland A9 173
Crawfordsville,Ind. M8 ..175
Donora,Pa. A7 173
Duluth A7 173
Fairfield,Ala. T2 175
Houston S5 178
Jacksonville,Fla. M8 175
Johnstown,Pa. B2 173
Joliet,Ill. A7 173
KansasCity,Mo. S5 178
Kokomo,Ind. C16 175
Minnequa,Colo. C10 178
Monessen,Pa. P7 173
Pittsburg,Calif. C11 192
Rankin,Pa. A7 173
S.Chicago,Ill. R2 173
SparrowsPt., Md. B2 175
Sterling,Ill. (7) N15 175
Worcester,Mass. A7 179

(To Wholesalers, per cwt)

Galveston,Tex. D7 ....$9.10

NAILS, Cut (100 lb keg)
To Dealers (33)

Wheeling W Va. W10 ..$9.80

POLISHED STAPLES **Col.**

AlabamaCity,Ala. R2 ...175
Aliquippa,Pa. J5 175
Atlanta A11 177
Bartonville,Ill. K4 177
Crawfordsville,Ind. M8 ..177
Donora,Pa. A7 175
Duluth A7 175
Fairfield,Ala. T2 175
Houston S5 180
Jacksonville,Fla. M8 177
Johnstown,Pa. B2 175
Joliet,Ill. A7 175
KansasCity,Mo. S5 180
Kokomo,Ind. C16 177
Minnequa,Colo. C10 180
Pittsburg,Calif. C11 194
Rankin,Pa. A7 175
S.Chicago,Ill. R2 175
SparrowsPt.,Md. B2 177
Sterling,Ill. (7) N15 175
Worcester,Mass. A7 181

TIE WIRE, Automatic Baler (14½ Ga.) (per 97 lb Net Box)
Coil No. 3150

AlabamaCity,Ala. R2 .$10.26
Atlanta A11 .....10.36
Bartonville,Ill. K4 ....10.36
Buffalo W12 .....10.26
Chicago W13 .....10.26
Crawfordsville,Ind. M8..10.36
Donora,Pa. A7 .....10.26
Duluth A7 .....10.26
Fairfield,Ala. T2 .....10.26
Houston S5 .....10.51
Jacksonville,Fla. M8 ....10.36
Johnstown,Pa. B2 .....10.26
Joliet,Ill. A7 .....10.26
KansasCity,Mo. S5 ....10.51
Kokomo,Ind. C16 .....10.36
LosAngeles B3 .....11.05
Minnequa,Colo. C10 ....10.51
Pittsburg,Calif. C11 ....11.04
S.Chicago,Ill. R2 .....10.26
S.SanFrancisco C10 ....11.04
SparrowsPt.,Md. B2 ....10.36
Sterling,Ill. (37) N15 ..10.36

Coil No. 6500 Stand.

AlabamaCity,Ala. R2.$10.60
Atlanta A11 .....10.70
Bartonville,Ill. K4 ....10.70
Buffalo W12 .....10.60
Chicago W13 .....10.60
Crawfordsville,Ind. M8..10.70
Donora,Pa. A7 .....10.60
Duluth A7 .....10.60
Fairfiled,Ala. T2 .....10.60
Houston S5 .....10.85
Jacksonville,Fla. M8 ..10.70
Johnstown,Pa. B2 ....10.60
Joliet,Ill. A7 .....10.60
KansasCity,Mo. S5 ....10.85
Kokomo,Ind. C16 .....10.70
LosAngeles B3 .....11.40
Minnequa,Colo. C10 ....10.85
Pittsburg,Calif. C11 ....11.40
S. Chicago,Ill. R2 .....10.60
S.SanFrancisco C10 ....11.40
SparrowsPt.,Md. B2 ....10.70
Sterling,Ill.(37) N15 ....10.70

Coil No. 6500 Interim

AlabamaCity,Ala. R2 .$10.65
Atlanta A11 .....10.75
Bartonville,Ill. K4 ....10.75
Buffalo W12 .....10.65
Chicago W13 .....10.65
Crawfordsville,Ind. M8..10.75
Donora,Pa. A7 .....10.65
Duluth A7 .....10.65
Fairfield,Ala. T2 .....10.65
Houston S5 .....10.90
Jacksonville,Fla. M8 ....10.75
Johnstown,Pa. B2 .....10.65
Joliet,Ill. A7 .....10.65
KansasCity,Mo. S5 ....10.90
Kokomo,Ind. C16 .....10.75
LosAngeles B3 .....11.45
Minnequa,Colo. C10 ....10.90
Pittsburg,Calif. C11 ....11.45
S.Chicago,Ill. R2 .....10.65
S.SanFrancisco C10 ....11.45
SparrowsPt.,Md. B2 ....10.75
Sterling,Ill.(37) N15 ..10.75

BALE TIES, Single Loop **Col.**

AlabamaCity,Ala. R2 ...212
Atlanta A11 214
Bartonville,Ill. K4 214
Crawfordsville,Ind. M8 ..214
Donora,Pa. A7 212
Duluth A7 212
Fairfield,Ala. T2 212
Houston S5 217
Jacksonville,Fla. M8 214
Joliet,Ill. A7 212
KansasCity,Mo. S5 217
Kokomo,Ind. C16 214
Minnequa,Colo. C10 217
Pittsburg,Calif. C11 236
S.SanFrancisco C10 236
SparrowsPt.,Md. B2 214
Sterling,Ill.(7) N15 214

FENCE POSTS

Birmingham C15 172
ChicagoHts.,Ill. C2, I-2..177
Duluth A7 172
Franklin,Pa. F5 177
Johnstown,Pa. B2 172
Marion,O. P11 172
Minnequa,Colo. C10 177
Sterling,Ill.(1) N15 177
Tonawanda,N.Y. B12 ...172

WIRE, Barbed **Col.**

AlabamaCity,Ala. R2 .193••
Aliquippa,Pa. J5 .....190§
Atlanta A11 .....198§
Bartonville,Ill. K4 198
Crawfordsville,Ind. M8 ..198
Donora,Pa. A7 .....193†
Duluth A7 .....193†
Fairfield,Ala. T2 .....193†
Houston S5 .....198••
Jacksonville,Fla. M8 198
Johnstown,Pa. B2 .....196§
Joliet,Ill. A7 .....193†
KansasCity,Mo. S5 .....198••
Kokomo,Ind. C16 .....195†
Minnequa,Colo. C10 ....198••
Monessen,Pa. P7 .....196§
Pittsburg,Calif. C11 ....213†
Rankin,Pa. A7 .....193†
S.Chicago,Ill. R2 .....193••
S.SanFrancisco C10 ....213••
SparrowsPoint,Md. B2..198§
Sterling,Ill (7) N15 ...198††

WOVEN FENCE, 9-15 Ga. **Col.**

Ala.City,Ala. R2 .....187••
Aliq'ppa,Pa.9-11½ga.J5 190§
Atlanta A11 .....192§
Bartonville,Ill. K4 192
Crawfordsville,Ind. M8 ..192
Donora,Pa. A7 .....187†
Duluth A7 .....187†
Fairfield,Ala. T2 .....187†
Houston S5 .....192••
Jacksonville,Fla. M8 192
Johnstown,Pa.(43) B2 ...190§
Joliet,Ill. A7 .....187†
KansasCity,Mo. S5 .....192••
Kokomo,Ind. C16 .....189†
Minnequa,Colo. C10 ....192••
Pittsburg,Calif. C11 ....210†
Rankin,Pa. A7 .....187†
S.Chicago,Ill. R2 .....187••
Sterling,Ill.(7) N15 ...192††

An'ld Galv.

WIRE (16 gage) Stone Stone

Ala.City,Ala.R2 17.85 19.40••
Aliq'ppa,Pa. J5 17.15 18.95
Bartonville K4 ..17.95 19.75
Cleveland A7 ....17.85 ....
Craw'dsville M8 17.95 19.80‡‡
Fostoria,O. S1 ..18.35 19.90†
Houston S5 ....18.10 19.65••
Jacksonville M8 17.95 19.80‡‡
Johnstown B2 ..17.85 19.65§
Kan.City,Mo. S5 ..18.10 ....
Kokomo C16 ....17.25 18.80†
Minnequa C10 ..18.10 19.65••
P'lm'r,Mass.W12 18.15 19.70†
Pitts.,Calif. C11.18.20 19.75†
S.SanFran C10.18.20 19.75••
SparrowsPt. B2..17.95 19.75§
Sterling(37)N15 17.25 19.05††
Waukegan A7 ..17.85 19.40†
Worcester A7 ...18.15 ....

WIRE, Merchant Quality
(6 to 8 gage) An'ld Galv.

Ala.City,Ala. R2.9.00 9.55••
Aliquippa J5 ....8.65 9.325§
Atlanta(48) A11..9.10 9.775§
Bartonville(48) K4.9.10 9.775
Buffalo W12 .....9.00 9.55†
Cleveland A7 .....9.00 ....
Crawfordsville M8.9.10 9.80‡‡
Donora,Pa. A7 ..9.00 9.55†
Duluth A7 .....9.00 9.55†
Fairfield T2 .....9.00 9.55†
Houston(48) S5 ..9.25 9.80••
Jack'ville,Fla. M8.9.10 9.80‡‡
Johnstown B2(48) 9.00 9.675§
Joliet,Ill. A7 .....9.00 9.55†
Kans.City(48) S5.9.25 9.80••
Kokomo(48) C16 ..9.10 9.65†
LosAngeles B3 ..9.95 10.625§
Monessen P7(48)..8.65 9.35§
Palmer,Mass. W12 9.30 9.85†
Pitts.,Calif. C11..9.95 10.50†
Rankin,Pa. A7 ....9.00 9.55†
S.Chicago R2 ...9.00 9.55••
S.SanFran. C10..9.95 10.50••
Spar'wsPt.B2(48) 9.10 9.775§
Sterling(48) N15 9.25 9.925††
Sterling(1) (48) 9.15 9.825††
Struthers,O. Y1 ..9.00 9.65†
Worcester,Mass.A7 9.30 9.85†

Based on zince price of: *13.50. †5c. $10c. ‡Less than 10c. ††10.50c. ‡‡11.00c. **Subject to zinc equalization extras.

FASTENERS

(Base discounts, shipments of one to four containers, per cent off list, f.o.b. mill)

BOLTS

Machine Bolts
Full Size Body (cut thread)
½ in. and smaller:
3 in. and shorter .. 53.0
3¼ in. thru 6 in. .. 47.0
Longer than 6 in. .. 33.0
⅝ in., 3 in. & shorter 44.0
3¼ in. thru 6 in. .. 37.0
Longer than 6 in. .. 27.0
¾ in. thru 1 in:
6 in. and shorter .. 33.0
Longer than 6 in. .. 27.0
1⅛ in. and larger:
All lengths 27.0
Undersize Body (rolled thread)
½ in. and smaller:
3 in. and shorter .. 53.0
3¼ in. thru 6 in. .. 47.0

Machine Bolts, Hot Galvanized
(Square & Hex, Full & Undersize Body)
½ in. and smaller:
3 in. and shorter .. 38.0
3¼ in. thru 6 in. .. 29.0
Longer than 6 in. .. 15.0
⅝ in., 3 in. and shorter 27.0
3¼ in. thru 6 in. .. 17.0
Longer than 6 in. .. 10.0
¾ in. thru 1 in.:
6 in. and shorter .. 18.0
Longer than 6 in. .. 7.0
1⅛ in. and larger:
All lengths 7.0

Carriage, Plow & Lag Bolts, Hot Galvanized
½ in. and smaller:
6 in. and shorter .. 28.0
Larger diameters and longer lengths ... 13.0

Carriage Bolts
Full Size Body (cut thread) & Undersize Body (rolled thread)
½ in. and smaller:
6 in. and shorter .. 46.0
Larger diameters and longer lengths 32.0

Lag, Plow, Tap, Blank, Step, Elevator, Thre, and Fitting Up Bolts
½ in. and smaller:
6 in. and shorter .. 46.0
Larger diameters and longer lengths 32.0

NUTS
(Container quantities and over)

Square Nuts, Reg. & Heavy:
All sizes 56.0

Square Nuts, Reg. & Heavy, Hot Galvanized:
All sizes 41.0

(Full container)

Hex Nuts, Reg. & Heavy

Hot Pressed & Cold Punched:
¾ in. and smaller.. 62.0
⅞ in. to 1½ in., incl. 56.0
1⅝ in. and larger.. 51.5

Hex Nuts, Semifinished, Heavy (Incl. Slotted):
¾ in. and smaller.. 62.0
⅞ in. to 1½-in., incl. 56.0
1⅝ in. and larger.. 51.5

Hex Nuts, Finished (Incl. Slotted and Castellated):
⅞ in. and smaller.. 65.0
1 in. to 1½ in., incl. 57.0
1⅝ in. and larger.. 51.5

Semifinished Hex Nuts, Reg. (Incl. Slotted):
⅝ in. and smaller.. 62.0
¾ in. to ⅞ in., incl. 65.0
1 in. to 1½ in., incl. 57.0
1⅝ in. and larger.. 51.5

CAP AND SETSCREWS
(Base discounts, packages, per cent off list, f.o.b. mill)

Hex Head Capscrews, Coarse or Fine Thread, Bright:
6 in. and shorter:
⅝ in. and smaller.. 35.0
¾, ⅞, and 1 in. ... 16.0
Longer than 6 in.:
⅝ in. and smaller.. 3.0
¾, ⅞, and 1 in. ...+11.0

High Carbon, Heat Treated:
6 in. and shorter:
⅝ in. and smaller.. 20.0
¾, ⅞, and 1 in. ...+ 5.0
Longer than 6 in.:
⅝ in. and smaller..+19.0
¾, ⅞, and 1 in. ...+39.0

Flat Head Capscrews:
¾ in. and smaller, 6 in. and shorter ..+85.0

Setscrews, Square Head, Cup Point, Coarse Thread:
Through 1 in. diam.:
6 in. and shorter...+ 5.0
Longer than 6 in. ..+29.0

RIVETS

F.o.b. Cleveland and/or freight equalized with Pittsburgh, f.o.b. Chicago and/or freight equalized with Birmingham except where equalization is too great.

Structural ½ in., larger 12.85
⅛ in. and smaller by 6 in. and shorter: 15.0%

BOILER TUBES

Net base c.l. prices, dollars per 100 ft., mill; minimum wall thickness, cut lengths 10 to 24 ft, inclusive.

O.D. In.	B.W. Gage	Seamless H.R.	Seamless C.D.	Elec. Weld H.R.
1	13	....	27.24	23.13
1¼	13	....	32.25	24.41
1½	13	30.42	35.65	26.98
1¾	13	35.94	42.12	31.89
2	13	40.28	47.21	35.74
2¼	13	45.36	53.17	40.26
2½	12	49.24	57.72	43.70
2½	12	54.23	63.57	48.13
2¾	12	58.73	68.83	52.13
3	12	62.62	73.40	55.59

RAILWAY MATERIALS

Rails	Standard No. 1	Standard No. 2	All No. 2	Tee Rails 60 lb Under
Bessemer,Pa. U5	5.75	5.65	....	6.725
Ensley,Ala. T2	5.75	5.65	....	6.725
Fairfield,Ala. T2	....	....	....	6.725
Gary,Ind. U5	5.75	5.65	....	....
Huntington, W.Va. C15	....	....	....	6.50
Johnstown,Pa. B2	....	....	....	(16)6.725
Lackawanna,N.Y. B2	5.75	5.65	....	6.725
Minnequa,Colo. C10	5.75	5.65	....	7.22
Steelton,Pa. B2	5.75	5.65	....	....
Williamsport,Pa. S19	....	....	....	6.725

TIE PLATES

Fairfield,Ala. T2 ....6.875
Gary,Ind. U5 .....6.875
Lackawanna,N.Y. B2 ..6.875
Minnequa,Colo. C10 ...7.025
Seattle B3 .....7.025
Steelton,Pa. B2 .....6.875
Torrance,Calif. C11 ....6.875

JOINT BARS

Bessemer,Pa. U5 .....7.25
Fairfield,Ala. T2 .....7.25
Joliet,Ill. U5 .....7.25
Lackawanna,N.Y. B2 ..7.25
Minnequa,Colo. C10 ....7.25
Steelton,Pa. B2 .....7.25

AXLES

Ind.Harbor,Ind. S13 ...9.125
Johnstown,Pa. B2 .....9.125

TRACK BOLTS, Untreated

Cleveland R2 .....15.35
KansasCity,Mo. S5 ....15.35
Lebanon,Pa. B2 .....15.35
Minnequa,Colo. C10 ...15.35
Pittsburgh P14 .....14.75
Seattle B3 .....15.85

SCREW SPIKES

Lebanon,Pa. B2 .....15.10

STANDARD TRACK SPIKES

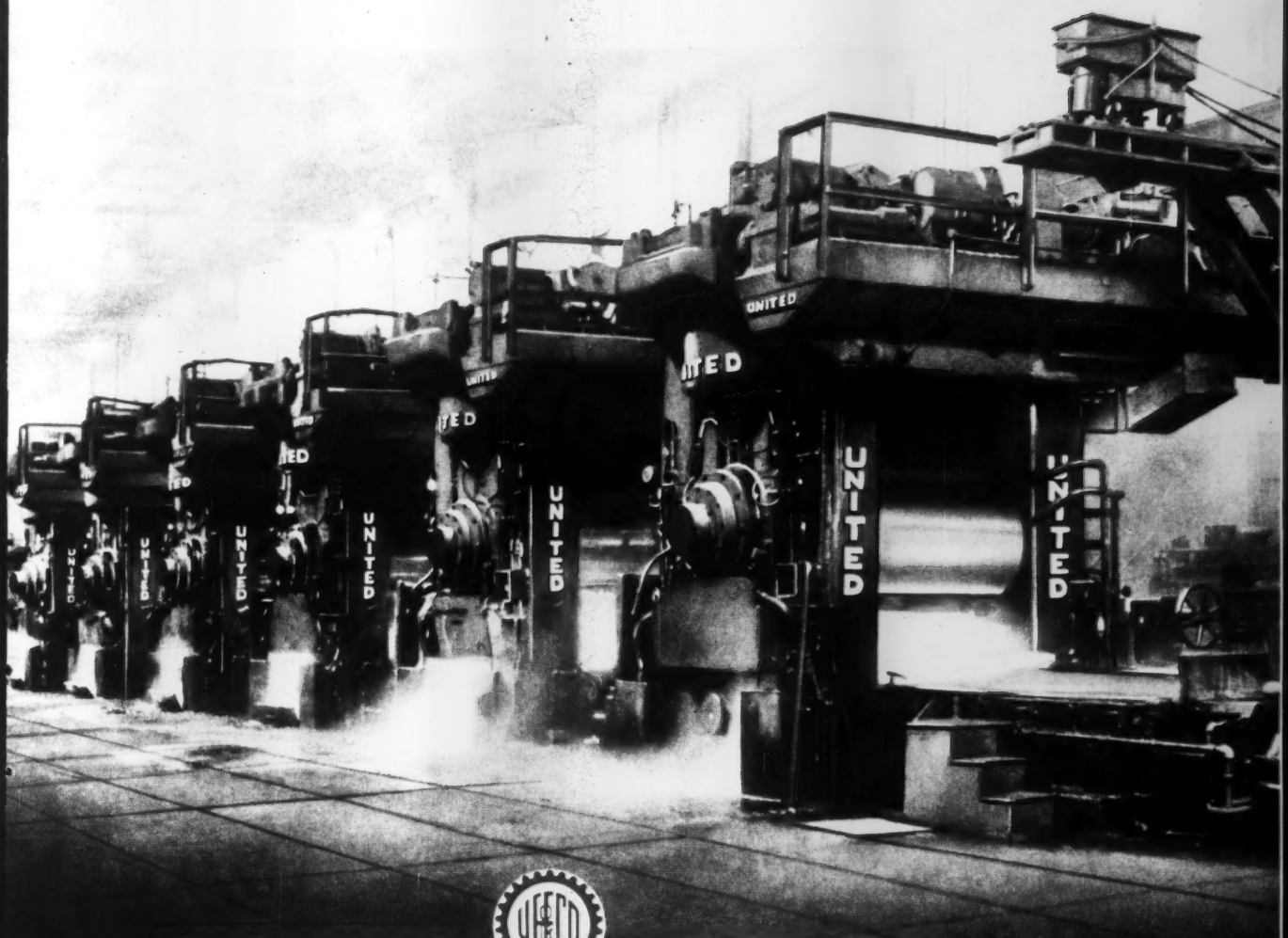
Fairfield,Ala. T2 .....9.75
Ind.Harbor,Ind. I-2,Y1 10.10
KansasCity,Mo. S5 ....10.10
Lebanon,Pa. B2 .....10.10
Minnequa,Colo. C10 ...10.10
Pittsburgh J5 .....10.10
Seattle B3 .....10.60
S.Chicago,Ill. R2 .....10.10
Struthers,O. Y1 .....10.10
Youngstown R2 .....10.10

Footnotes

(1) Chicago base.
(2) Angles, flats, bands.
(3) Merchant.
(4) Reinforcing.
(5) 1½ to under 1 7/16 in.; 1 7/16 to under 1 15/16 in., 6.70c; 1 15/16 to 3 in., inclusive, 7.05c.
(6) Chicago or Birm. base.
(7) Chicago base 2 cols. lower.
(8) 16 Ga. and heavier.
(9) Merchant quality; add 0.35c for special quality.
(10) Pittsburgh base.
(11) Cleveland & Pitts. base.
(12) Worcester, Mass., base.
(13) Add 0.25c for 17 Ga. & heavier.
(14) Gage 0.143 to 0.249 in.; for gage 0.142 and lighter, 5.80c.
(15) ⅝" and thinner.
(16) 40 lb and under.
(17) Flats only; 0.25 in. & heavier.
(18) To dealers.
(19) Chicago & Pitts. base.
(21) New Haven, Conn., base.
(22) Deld. San Francisco Bay area.
(23) Special quality.
(24) Deduct 0.05c, finer than 15 Ga.
(25) Bar mill bands.
(26) Deld. in mill zone, 6.295c.
(27) Bar mill sizes.
(28) Bonderized.
(29) Youngstown base.
(30) Sheared; for universal mill add 0.45c.
(31) Widths over ⅝ in.; 7.875c, for widths ⅝ in. and under by 0.125 in. and thinner.
(32) Buffalo base.
(33) To jobbers, deduct 20c.
(34) 9.60c for cut lengths.
(35) 72" and narrower.
(36) 54" and narrower.
(37) Chicago base, 10 points lower.
(38) 14 Ga. & lighter; 48" & narrower.
(39) 48" and narrower.
(40) Lighter than 0.035"; 0.035" and heavier, 0.25c higher.
(41) 9.10c for cut lengths.
(42) Mill lengths, f.o.b. mill; deld. in mill zone or with a switching limits, 5.685c.
(43) 9-14½ Ga.
(44) To fabricators.
(48) 6-7 Ga.
(49) 3½ in. and smaller rounds; 9.65c, over 3½ in. and other shapes.

UNITED®

4-HIGH 6-STAND CONTINUOUS HOT STRIP MILL



UNITED ENGINEERING AND FOUNDRY COMPANY
PITTSBURGH, PENNSYLVANIA

Plants at Pittsburgh, Vandergrift, Youngstown, Canton, Wilmington

SUBSIDIARIES: Adamson United Company, Akron, Ohio; Stedman Foundry and Machine Co., Inc., Aurora, Indiana

Designers and Builders of Ferrous and Nonferrous Rolling Mills, Mill Rolls, Auxiliary Mill and Processing Equipment, Presses and other heavy machinery. Manufacturers of Iron, Nodular Iron and Steel Castings and Weldments.

A Review of the Phosphate Coatings

Specified for the Protection of Metal Surfaces

By HUGH GEHMAN, Assistant Manager, Product Development Dept., AMCHEM PRODUCTS, INC.

Phosphate coatings are protective inorganic finishes that actually change the chemical nature of metal surfaces. The metal reacts with the applied phosphate solution to form a nonmetallic, crystalline coating which serves to:

- **Improve paint adhesion**
- **Provide protection against corrosion**
- **Increase lubricity of friction surfaces**
- **Facilitate mechanical deformation of metals**
- **Decorate—in many instances**

Satisfactory protection of steel, zinc and aluminum surfaces against corrosion, paint peeling and blistering, and hard wear requires precision methods of chemical conversion coating.

Types of Conversion Coatings

There are seven classes of chemical conversion coatings commonly specified and used throughout industry today. They are as follows:

Zinc-iron phosphate (ACP Granodine®). This is the heaviest type of coating (gray in color) used for prepaint treatments on steel, iron and zinc surfaces. The process requires five or six operations: cleaning; rinsing; rust removal, if necessary; coating; rinsing; and a second rinse. Coating weight ranges from 100 to 600 mg per sq. ft.

Medium or large volume production of automobile bodies, appliances, projectiles and cabinets can be handled effectively.

The coating solution improves paint adhesion by forming a crystalline deposit over the metal surface. This deposit is rough, as revealed microscopically, and so offers an ideal gripping surface for paint particles.

Manganese-iron phosphate (ACP Thermoil-Granodine®). This is a heavy black coating used on friction surfaces to prevent galling, scoring and seizing of parts. Typical metal parts treated are pistons, piston rings, gears, cylinder liners, camshafts, tappets and various small arms components.

Iron phosphate (ACP Duridine®). This is a comparatively new process that places a light coating on surfaces for improved paint adhesion. Since cleaning and coating occur in the same bath, it has only three to five stages.

The iron phosphate treatment is a spray process suited for medium to large volume, large or small work. Precleaning is normally unnecessary, an economy factor in its favor.

Products protected by this process are steel or iron fabricated units, such as cabinets, washing machines and refrigerators. Weight of coating is 50 to 100 mg per sq. ft.

Zinc phosphate (ACP Lithoform®). This is a crystalline coating produced on galvanized iron and other zinc surfaces—also cadmium—for improving paint adhesion. The purpose of the coating is to provide a paint-gripping surface and to prevent the reaction between acidic components of the paint and the zinc metal, with the formation of soaps and loss of paint adhesion.

This coating is applied in weights of 75 to 500 mg per sq. ft. There are no limitations on volume or production or on size of products treated. Zinc phosphate coating is used on zinc alloy die castings, zinc or cadmium plated sheet or components, hot dip galvanized stock, and Galvanneal.

Amorphous phosphate (ACP Alodine®). This is a relatively new protective coating for aluminum and aluminum alloys. It may be used in place of anodic deposition for improved paint adhesion and corrosion resistance.

This coating is practical for production in any volume. Coating weight is 100 to 600 mg per sq. ft. Products treated include helmets, belt buckles, aircraft and aircraft parts, bazookas and rocket motors, roofing and siding. Particularly good when aluminum is painted prior to forming.

Zinc-iron phosphate for oil absorption (ACP Permadine®). This is a relatively heavy coating adapted to the retention of rust-inhibiting drying or nondrying oils and waxes on ferrous metal surfaces. The coating is applied to a weight of 1000 to 4000 mg per sq. ft.

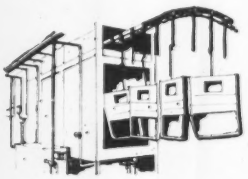
The process is satisfactory for large or small work in any volume—nuts, bolts, hardware, guns, tools, etc.

Zinc-iron phosphate for metal forming (ACP Granodraw®). This is a specialized coating used in conjunction with a suitable lubricant to facilitate the cold mechanical deformation of steel. The coating acts as an anchor for the lubricant throughout drawing, extrusion, and cold forming operations.

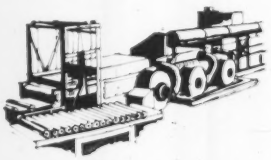
It is a successful treatment for products such as blanks and shells for cold forming, heavy stampings, impact extruded shapes, drawn wire and tube.

For more complete information about any one or all of these chemical conversion coatings, contact an ACP sales representative or write us at Ambler, Pa.

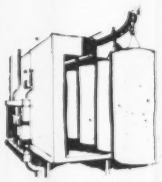
Typical Installations of Phosphate Coating Systems



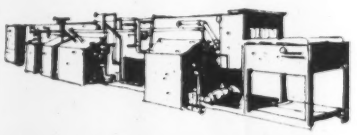
Customer: Truck manufacturer
Problem: Preparing cab parts for painting
Cycle: Phosphate wash; phosphate wash; rinse; chromic acid rinse; dry



Customer: Aluminum screen manufacturer
Problem: Final finish of aluminum shade screen
Cycle: Wash; rinse; phosphate coat; rinse; chromic acid rinse; dry



Customer: Water heater manufacturer
Problem: Preparation of water heater shells for synthetic enameling
Cycle: Phosphate wash; rinse; chromic acid rinse; dry



Customer: Hardware manufacturer
Problem: Preparing hardware parts for painting
Cycle: Wash; rinse; phosphate coat; rinse; chromic acid rinse; dry

Amchem Products, Inc.
Ambler 19, Pa.
CHEMICALS ACP PROCESSES
Formerly
AMERICAN CHEMICAL PAINT COMPANY
DETROIT, MICH. • ST. JOSEPH, MO.
NILES, CALIF. • WINDSOR, ONT.
New Chemical Horizons for Industry and Agriculture

SEAMLESS STANDARD PIPE, Threaded and Coupled

Carload discounts from list, %

Size—Inches	2		2½		3		3½		4		5		6	
List Per Ft	37c		58.5c		76.5c		92c		$1.09		$1.48		$1.92	
Pounds Per Ft	3.68		5.82		7.62		9.20		10.89		14.81		19.18	
	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*
Aliquippa, Pa. J5	+12.25	+27.25	+5.75	+22.5	+3.25	+20	+1.75	+18.5	+1.75	+18.5	+2	+18.75	0.5	+16.25
Ambridge, Pa. N2	+12.25	....	+5.75	....	+3.25	....	+1.75	....	+1.75	....	+2	....	0.5	....
Lorain, O. N3	+12.25	+27.25	+5.75	+22.5	+3.25	+20	+1.75	+18.5	+1.75	+18.5	+2	+18.75	0.5	+16.25
Youngstown Y1	+12.25	+27.25	+5.75	+22.5	+3.25	+20	+1.75	+18.5	+1.75	+18.5	+2	+18.75	0.5	+16.25

ELECTRICWELD STANDARD PIPE, Threaded and Coupled

Carload discounts from list, %

Youngstown R2	+12.25	+27.25	+5.75	+22.5	+3.25	+20	+1.75	+18.5	+1.75	+18.5	+2	+18.75	0.5	+16.25

BUTTWELD STANDARD PIPE, Threaded and Coupled

Carload discounts from list, %

Size—Inches	⅛		¼		⅜		½		¾		1		1¼	
List Per Ft	5.5c		6c		6c		8.5c		11.5c		17c		23c	
Pounds Per Ft	0.24		0.42		0.57		0.85		1.13		1.68		2.28	
	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*
Aliquippa, Pa. J5	....	....	....	....	....	....	2.25	+13	5.25	+9	8.75	+4.5	11.25	+3.75
Alton, Ill. L1	....	....	....	....	....	....	0.25	+15	3.25	+11	6.75	+6.5	9.25	+5.75
Benwood, W. Va. W10	1.5	+25	+10.5	+34	+21	+42.5	2.25	+13	5.25	+9	8.75	+4.5	11.25	+3.75
Butler, Pa. F6	4.5	+22	+8.5	+32	+19.5	+41	....	....	....	....	....	....	....	....
Etna, Pa. N2	....	....	....	....	....	....	2.25	+13	5.25	+9	8.75	+4.5	11.25	+3.75
Fairless, Pa. N3	....	....	....	....	....	....	0.25	+15	3.25	+11	6.75	+6.5	9.25	+5.75
Fontana, Calif. K1	....	....	....	....	....	....	10.75	+26	7.75	+22	4.25	+17.5	1.75	+16.75
Indiana Harbor, Ind. Y1	....	....	....	....	....	....	1.25	+14	4.25	+10	7.75	+5.5	10.25	+6.25
Lorain, O. N3	....	....	....	....	....	....	2.25	+13	5.25	+9	8.75	+4.5	11.25	+3.75
Sharon, Pa. S4	4.5	+22	+8.5	+32	+19.5	+41	....	....	....	....	....	....	....	....
Sharon, Pa. M6	....	....	....	....	....	....	2.25	+13	5.25	+9	8.75	+4.5	11.25	+3.75
Sparrows Pt., Md. B2	0.5	+26	+11.5	+35	+22	+43.5	0.25	+15	3.25	+11	6.75	+6.5	9.25	+5.75
Wheatland, Pa. W9	4.5	+22	+8.5	+32	+19.5	+41	2.25	+13	5.25	+9	8.75	+4.5	11.25	+3.75
Youngstown R2, Y1	....	....	....	....	....	....	2.25	+13	5.25	+9	8.75	+4.5	11.25	+3.75

Size—Inches	1¼		2		2½		3		3½		4	
List Per Ft	27.5c		37c		58.5c		76.5c		92c		$1.09	
Pounds Per Ft	2.72		3.68		5.82		7.62		9.20		10.89	
	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*
Aliquippa, Pa. J5	11.75	+2.75	12.25	+2.25	13.75	+2.5	13.75	+2.5	....	....	....	....
Alton, Ill. L1	9.75	+4.75	10.25	+4.25	11.75	+4.5	11.75	+4.5	1.25	+15.5	1.25	+15.5
Benwood, W. Va. W10	11.75	+2.75	12.25	+2.25	13.75	+2.5	13.75	+2.5	3.25	+13.5	3.25	+13.5
Etna, Pa. N2	11.75	+2.75	12.25	+2.25	13.75	+2.5	13.75	+2.5	3.25	+13.5	3.25	+13.5
Fairless, Pa. N3	9.75	+4.75	10.25	+4.25	11.75	+4.5	11.75	+4.5	1.25	+15.5	1.25	+15.5
Fontana, Calif. K1	+1.25	+15.75	+0.75	+15.25	0.75	+15.5	0.75	+15.5	+9.75	+26.5	+9.75	+26.5
Indiana Harbor, Ind. Y1	10.75	+3.75	11.25	+3.25	12.75	+3.5	12.25	+3.5	2.25	+14.5	2.25	+14.5
Lorain, O. N3	11.75	+2.75	12.25	+2.25	13.75	+2.5	13.75	+2.5	....	....	....	....
Sharon, Pa. M6	11.75	+2.75	12.25	+2.25	13.75	+2.5	13.75	+2.5	....	....	....	....
Sparrows Pt., Md. B2	9.75	+4.75	10.25	+4.25	11.75	+4.5	11.75	+4.5	1.25	+15.5	1.25	+15.5
Wheatland, Pa. W9	11.75	+2.75	12.25	+2.25	13.75	+2.5	13.75	+2.5	3.25	+13.5	3.25	+13.5
Youngstown R2, Y1	11.75	+2.75	12.25	+2.25	13.75	+2.5	13.75	+2.5	3.25	+13.5	3.25	+13.5

*Galvanized pipe discounts based on current price of zinc (11.00c, East St. Louis).

Stainless Steel

Representative prices, cents per pound; subject to current lists of extras

AISI Type	—Rerolling— Ingot	Slabs	Forging Billets	H.R. Strip	H.R. Rods; C.F. Wire	Bars; Structural Shapes	Plates	Sheets	C.R. Strip; Flat Wire
201	22.00	27.00	....	36.00	40.00	42.00	39.25	48.50	45.00
202	23.75	30.25	36.50	39.00	40.75	43.00	40.00	49.25	49.25
301	23.25	28.00	37.25	37.25	42.00	44.25	41.25	51.25	47.50
302	25.25	31.50	38.00	40.50	42.75	45.00	42.25	52.00	52.00
302B	25.50	32.75	40.75	45.75	45.00	47.25	44.50	57.00	57.00
303	....	32.00	41.00	46.00	45.50	48.00	45.00	56.75	56.75
304	27.00	33.25	40.50	44.25	45.25	47.75	45.75	55.00	55.00
304L	....	....	38.25	51.50	53.00	55.50	53.50	63.25	63.25
305	28.50	36.75	42.50	47.50	45.25	47.75	46.25	58.75	58.75
308	30.75	38.25	47.25	50.25	52.75	55.75	55.25	63.00	63.00
309	39.75	49.50	57.75	64.50	63.75	67.00	66.00	80.50	80.50
310	49.75	61.50	78.00	84.25	86.50	91.00	87.75	96.75	96.75
314	....	....	77.50	....	86.50	91.00	87.75	99.00	104.25
316	39.75	49.50	62.25	69.25	69.25	73.00	71.75	80.75	80.75
316L	....	55.50	70.00	76.50	77.00	80.75	79.50	89.25	89.25
317	48.00	60.00	76.75	88.25	86.25	90.75	88.50	101.00	101.00
321	32.25	40.00	47.00	53.50	52.50	55.50	54.75	65.50	65.50
330	....	....	118.75	....	132.00	138.50	135.50	149.25	149.25
18-8 CbTa	37.00	46.50	55.75	63.50	61.50	64.75	64.75	79.25	79.25
403	....	....	28.25	....	32.00	33.75	30.00	40.25	40.25
405	19.50	25.50	29.75	36.00	33.50	35.25	32.50	46.75	46.75
410	16.75	21.50	28.25	31.00	32.00	33.75	30.00	40.25	40.25
416	....	....	28.75	....	32.50	34.25	31.25	48.25	48.25
420	26.00	33.50	34.25	41.75	39.25	41.25	40.25	62.00	62.00
430	17.00	21.75	28.75	32.00	32.50	34.25	31.00	40.75*	40.75
430F	....	....	29.50	....	33.00	34.75	31.75	51.75	51.75
431	....	28.75	37.75	....	42.00	44.25	41.00	56.00	56.00
446	....	....	39.25	59.00	44.25	46.50	42.75	70.00	70.00

Stainless Steel Producers Are: Allegheny Ludlum Steel Corp.; American Steel & Wire Div., U. S. Steel Corp.; Anchor Drawn Steel Co., division of Vanadium-Alloys Steel Co.; Armco Steel Corp.; Babcock & Wilcox Co.; Bethlehem Steel Co.; J. Bishop & Co.; A. M. Byers Co.; G. O. Carlson Inc.; Carpenter Steel Co.; Carpenter Steel Co. of New England; Charter Wire Products; Crucible Steel Co. of America; Damascus Tube Co.; Dearborn Div., Sharon Steel Corp.; Wilbur B. Driver Co.; Driver-Harris Co.; Eastern Stainless Steel Corp.; Firth Sterling Inc.; Fort Wayne Metals Inc.; Green River Steel Corp., subsidiary of Jessop Steel Co.; Indiana Steel & Wire Co.; Ingersoll Steel Div., Borg-Warner Corp.; Ellwood Ivins Steel Tube Works Inc.; Jessop Steel Co.; Johnson Steel & Wire Co. Inc.; Stainless & Strip Div., Jones & Laughlin Steel Corp.; Joslyn Stainless Steels, division of Joslyn Mfg. & Supply Co.; Latrobe Steel Co.; Lukens Steel Co.; Maryland Fine & Specialty Wire Co. Inc.; McLouth Steel Corp.; Metal Forming Corp.; Midvale-Heppenstall Co.; National Standard Co.; National Tube Div., U. S. Steel Corp.; Pacific Tube Co.; Page Steel & Wire Div., American Chain & Cable Co. Inc.; Pittsburgh Rolling Mills Inc.; Republic Steel Corp.; Riverside-Alloy Metal Div., H. K. Porter Company Inc.; Rodney Metals Inc.; Sawhill Tubular Products Inc.; Sharon Steel Corp.; Simonds Saw & Steel Co.; Specialty Wire Co. Inc.; Standard Tube Co.; Superior Steel Div., Copperweld Steel Co.; Superior Tube Co.; Swepco Tube Corp.; Techalloy Co. Inc.; Timken Roller Bearing Co.; Trent Tube Co., subsidiary of Crucible Steel Co. of America; Tube Methods Inc.; Ulbrich Stainless Steel Inc.; U. S. Steel Corp.; Universal Cyclops Steel Corp.; Vanadium-Alloys Steel Co.; Wall Tube & Metal Products Co.; Wallingford Steel Co., subsidiary of Allegheny Ludlum Steel Corp.; Washington Steel Corp.

Clad Steel

	Plates: 5%	Plates: Carbon Base 10%	Plates: Carbon Base 15%	Plates: Carbon Base 20%	Sheets: Carbon Base 20%
Stainless					
302	....	....	....	....	37.50
304	26.05	28.80	31.55	34.30	39.75
304L	30.50	33.75	36.95	40.15	....
316	38.20	42.20	46.25	50.25	58.25
316L	42.30	46.75	51.20	55.65	....
316 Cb	49.90	55.15	60.40	65.65	....
321	31.20	34.50	37.75	41.05	47.25
347	36.90	40.80	44.65	48.55	57.00
405	22.25	24.60	26.90	29.25	....
410	20.55	22.70	24.85	27.00	....
430	21.20	23.45	25.65	27.90	....
Inconel	48.90	59.55	70.15	80.85	....
Nickel	41.65	51.95	62.30	72.70	....
Nickel, Low Carbon	41.95	52.60	63.30	74.15	....
Monel	43.35	53.55	63.80	74.05	....

	Strip, Carbon Base —Cold Rolled— 10%	Both Sides
Copper*	34.75	40.65

*Deoxidized. Production points: Stainless-clad sheets, New Castle, Ind. I-4; stainless-clad plates, Claymont, Del. C22, Coatesville, Pa. L7, New Castle, Ind. I-4, and Washington, Pa. J3, nickel, inconel, monel-clad plates, Coatesville L7; copper-clad strip, Carnegie, Pa. S18.

Tool Steel

Grade	$ per lb	Grade	$ per lb
Reg. Carbon (W-1)	0.330	W-Cr Hot Work (H-12)	0.530
Spec. Carbon (W-1)	0.385	V-Cr Hot Work (H-13)	0.550
Oil Hardening (O-1)	0.505	W Hot Wk. (H-21)	1.425-1.44
V-Cr Hot Work (H-11)	0.505	Hi-Carbon-Cr (D-11)	0.955

Grade by Analysis (%) W	Cr	V	Co	Mo	AISI Designation	$ per lb
18	4	1	....	....	T-1	1.840
18	4	2	....	....	T-2	2.005
13.5	4	3	....	....	T-3	2.105
18.25	4.25	1	4.75	....	T-4	2.545
18	4	2	9	....	T-5	2.915
20.25	4.25	1.6	12.25	....	T-6	4.330
13.75	3.75	2	5	....	T-8	2.485
1.5	4	1	....	8.5	M-1	1.200
6.4	4.5	1.9	....	5	M-2	1.345
6	4	3	....	6	M-3	1.590

Tool steel producers include: A4, A8, B2, B8, C4, C9, C12, C18, F2, J3, L3, M14, S8, U4, V2, and V3.

Pig Iron

F.o.b. furnace prices in dollars per gross ton, as reported to STEEL. Minimum delivered prices are approximate.

	Basic	No. 2 Foundry	Malle-able	Besse-mer
Birmingham District				
Birmingham R2	62.00	62.50**	....	....
Birmingham U6	....	62.50**	66.50	....
Woodward,Ala. W15	62.50*	62.50**	66.50	....
Cincinnati, deld.	....	70.20	....	....
Buffalo District				
Buffalo H1, R2	66.00	66.50	67.00	67.50
N.Tonawanda,N.Y. T9	....	66.50	67.00	67.50
Tonawanda,N.Y. W12	66.00	66.50	67.00	67.50
Boston, deld.	77.29	77.79	78.29	....
Rochester,N.Y., deld.	69.02	69.52	70.02	....
Syracuse,N.Y., deld.	70.12	70.62	71.12	....
Chicago District				
Chicago I-3	66.00	66.50	66.50	67.00
S.Chicago,Ill. R2	66.00	66.50	66.50	67.00
S.Chicago,Ill. W14	66.00	....	66.50	67.00
Milwaukee, deld.	69.02	69.52	69.52	70.02
Muskegon,Mich., deld.	....	74.52	74.52	....
Cleveland District				
Cleveland R2, A7	66.00	66.50	66.50	67.00
Akron,Ohio., deld.	69.52	70.02	70.02	70.52
Mid-Atlantic District				
Birdsboro,Pa. B10	68.00	68.50	69.00	69.50
Chester,Pa. P4	68.00	68.50	69.00	....
Swedeland,Pa. A3	68.00	68.50	69.00	69.50
New York, deld.	....	75.50	76.00	....
Newark,N.J., deld.	72.69	73.19	73.69	74.19
Philadelphia, deld.	70.41	70.91	71.41	71.99
Troy,N.Y. R2	68.00	68.50	69.00	69.50
Pittsburgh District				
NevilleIsland,Pa. P6	66.00	66.50	66.50	67.00
Pittsburgh (N&S sides), Aliquippa, deld.	....	67.95	67.95	68.48
McKeesRocks,Pa., deld.	....	67.60	67.60	68.13
Lawrenceville,Homestead, Wilmerding,Monaca,Pa., deld.	....	68.26	68.26	68.79
Verona,Trafford,Pa., deld.	68.29	68.82	68.82	69.35
Brackenridge,Pa., deld.	68.60	69.10	69.10	69.63
Midland,Pa. C18	66.00	....	....	....
Youngstown District				
Hubbard,Ohio Y1	....	....	66.50	....
Sharpsville,Pa. S6	66.00	....	66.50	67.00
Youngstown Y1	....	....	66.50	....
Mansfield,Ohio, deld.	71.30	....	71.80	72.30
Duluth I-3	66.00	66.50	66.50	67.00
Erie,Pa. I-3	66.00	66.50	66.50	67.00
Everett,Mass. E1	67.50	68.00	68.50	....
Fontana,Calif. K1	75.00	75.50	....	....
Geneva,Utah C11	66.00	66.50	....	....
GraniteCity,Ill. G4	67.90	68.40	68.90	....
Ironton,Utah C11	66.00	66.50	....	....
Minnequa,Colo. C10	68.00	68.50	69.00	....
Rockwood,Tenn. T3	....	62.50‡	66.50	....
Toledo,Ohio I-3	66.00	66.50	66.50	67.00
Cincinnati, deld.	72.94	73.44	....	....

*Phos. 0.70-0.90%; Phos. 0.30-0.69%, 63.
**Phos. 0.70-0.90%; Phos. 0.30-0.69%, $63.50.
‡Phos. 0.50% up; Phos. 0.30-0.49, $63.50.

PIG IRON DIFFERENTIALS

Silicon: Add 75 cents per ton for each 0.25% Si or percentage thereof over base grade, 1.75-2.25%, except on low phos. iron on which base is 1.75-2.00%.

Manganese: Add 50 cents per ton for each 0.25% manganese over 1% or portion thereof.

BLAST FURNACE SILVERY PIG IRON, Gross Ton

(Base 6.00-6.50% silicon; add $1 for each 0.50% silicon or portion thereof over the base grade within a range of 6.50 to 11.50%; starting with silicon over 11.50% and $1.50 per ton for each 0.50% silicon or portion thereof up to 14%; add $1 for each 0.50% Mn over 1%)

Jackson,Ohio I-3, J1	$78.00
Buffalo H1	79.25

ELECTRIC FURNACE SILVERY IRON, Gross Ton

(Base 14.01-14.50% silicon; add $1 for each 0.5% Si to 18%; $1.25 for each 0.50% Mn over 1%; $2 per gross ton premium for 0.045% max P)

CalvertCity,Ky. P15	$99.00
NiagaraFalls,N.Y. P15	99.00
Keokuk,Iowa Open-hearth & Fdry, $9 freight allowed K2	103.50
Keokuk,Iowa O.H. & Fdry, 12½ lb piglets, 16% Si, max freight allowed up to $9, K2	106.50

LOW PHOSPHORUS PIG IRON, Gross Ton

Lyles,Tenn. T3 (Phos. 0.035% max)	$73.00
Rockwood,Tenn. T3 (Phos. 0.035% max)	73.00
Troy,N.Y. R2 (Phos. 0.035% max)	73.00
Philadelphia, deld.	81.67
Cleveland A7 (Intermediate) (Phos. 0.036-0.075% max)	71.00
Duluth I-3 (Intermediate) (Phos. 0.036-0.075% max)	71.00
Erie,Pa. I-3 (Intermediate) (Phos. 0.036-0.075% max)	71.00
NevilleIsland,Pa. P6 (Intermediate) (Phos. 0.036-0.075% max)	71.00

Steel Service Center Products

Representative prices, per pound, subject to extras, f.o.b. warehouse. City delivery charges are 15 cents per 100 lb except: Denver, Moline, Norfolk, Richmond, Washington, 20 cents; Baltimore, Boston, Los Angeles, New York, Philadelphia, Portland, Spokane, San Francisco, 10 cents; Atlanta, Birmingham, Chattanooga, Houston, Seattle, no charge.

	SHEETS				STRIP	BARS			Standard Structural Shapes	PLATES	
	Hot-Rolled	Cold-Rolled	Gal. 10 Ga.†	Stainless Type 302	Hot-Rolled*	H.R. Rounds	C.F. Rds.‡	H.R. Alloy 4140††[5]		Carbon	Floor
Atlanta	8.59§	9.86§	10.13	....	8.91	9.39	13.24#	....	9.40	9.29	11.21
Baltimore	8.55	9.25	9.99	....	9.05	9.45	11.85#	15.48	9.55	9.00	10.50
Birmingham	8.18	9.45	10.46	....	8.51	8.99	....	....	8.64	8.89	10.99
Boston	9.31	10.40	11.39	53.50	9.73	10.11	13.39#	15.71	10.01	10.02	11.87
Buffalo	8.25	9.60	11.30	55.98	8.75	9.15	11.45#	15.40	9.25	9.20	10.75
Chattanooga	8.35	9.69	9.65	....	8.40	8.77	10.46	....	8.88	8.80	10.66
Chicago	8.25	9.45	10.50	53.00	8.51	8.99	9.15	15.05	9.15	8.89	10.20
Cincinnati	8.43	9.51	10.55	53.43	8.83	9.31	11.53#	15.37	9.56	9.27	10.53
Cleveland	8.36	9.54	10.20	52.33	8.63	9.10	11.25#	15.16	9.39	9.13	10.44
Dallas	8.80	9.30	....	....	8.85	8.80	....	....	8.75	9.15	10.40
Denver	9.40	11.84	12.94	....	9.43	9.80	11.19	....	9.84	9.76	11.08
Detroit	8.51	9.71	10.87	56.50	8.88	9.30	9.51	15.33	9.56	9.26	10.46
Erie, Pa.	8.20	9.45	9.95[10]	....	8.60	9.10	11.25	....	9.35	9.10	10.60
Houston	8.40	8.90	10.29	52.00	8.45	8.40	11.60	15.75	8.35	8.75	10.10
Jackson, Miss.	8.52	9.79	....	....	8.57	8.94	10.68	....	8.97	8.90	10.74
Los Angeles	8.70[2]	10.80[2]	12.15[2]	57.60	9.15	9.10[2]	12.95[2]	16.35	9.00[2]	9.10[2]	11.30[2]
Memphis, Tenn.	8.55	9.80	10.45	....	8.58	9.32	11.96#	....	9.33	9.22	10.86
Milwaukee	8.39	9.59	10.64	....	8.65	9.13	9.39	15.19	9.22	9.05	10.34
Moline, Ill.	8.55	9.80	....	....	8.84	8.95	9.15	....	8.99	8.91	....
New York	8.87	10.13	10.56	53.08	9.64	9.99	13.25#	15.50	9.74	9.77	11.05
Norfolk, Va.	8.40	....	....	....	9.10	9.10	12.00	....	9.40	8.85	10.35
Philadelphia	8.20	9.25	11.34	52.71	9.25	9.40	11.95#	15.48	9.10	9.15	10.40**
Pittsburgh	8.35	9.55	10.85	52.00	8.61	8.99	11.25#	15.05	9.00	8.89	10.20
Richmond, Va.	8.40	....	10.40	....	9.10	9.00	....	....	9.40	8.85	10.35
St. Louis	8.63	9.83	10.88	....	8.89	9.37	9.78	15.43	9.48	9.27	10.58
St. Paul	8.79	10.04	11.09	....	8.84	9.21	9.86	....	9.38	9.30	10.49
San Francisco	9.65	11.10	11.00	55.10	9.75	10.15	13.00	16.00	9.85	10.00	12.00
Seattle	8.70	10.30[2]	10.95[2]	55.02	8.75	8.85	14.70	16.80[5]	8.55	8.45	10.85
South'ton, Conn.	9.07	10.33	10.71	....	9.48	9.74	....	....	9.57	9.57	10.91
Spokane	9.95	11.15	12.20	57.38	10.00	10.10	14.70	16.80	9.80	9.70	12.10
Washington	9.15	....	....	....	9.65	10.05	12.50	....	10.15	9.60	11.10

*Prices do not include gage extras; †prices include gage and coating extras; ‡includes 35-cent bar quality extras; §42 in. and under; **⅛ in. and heavier; ††as annealed; ‡‡⅜ in. to 4 in. wide, inclusive; #net price. 1 in. round C-1018.

Base quantities, 2000 to 4999 lb except as noted; cold-finished bars, 2000 lb and over except in Seattle, 2000 to 3999 lb; stainless sheets, 8000 lb except in Chicago, New York, Boston, Seattle, 10,000 lb and in San Francisco, 2000 to 4999 lb; hot-rolled products on West Coast, 2000 to 9999 lb, except in Seattle, 30,000 lb and over; [2]—30,000 lb; [3]—1000 to 4999 lb; [5]—1000 to 1999 lb; [10]—2000 lb and over.

JAI-ALAI
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TO FLAKE
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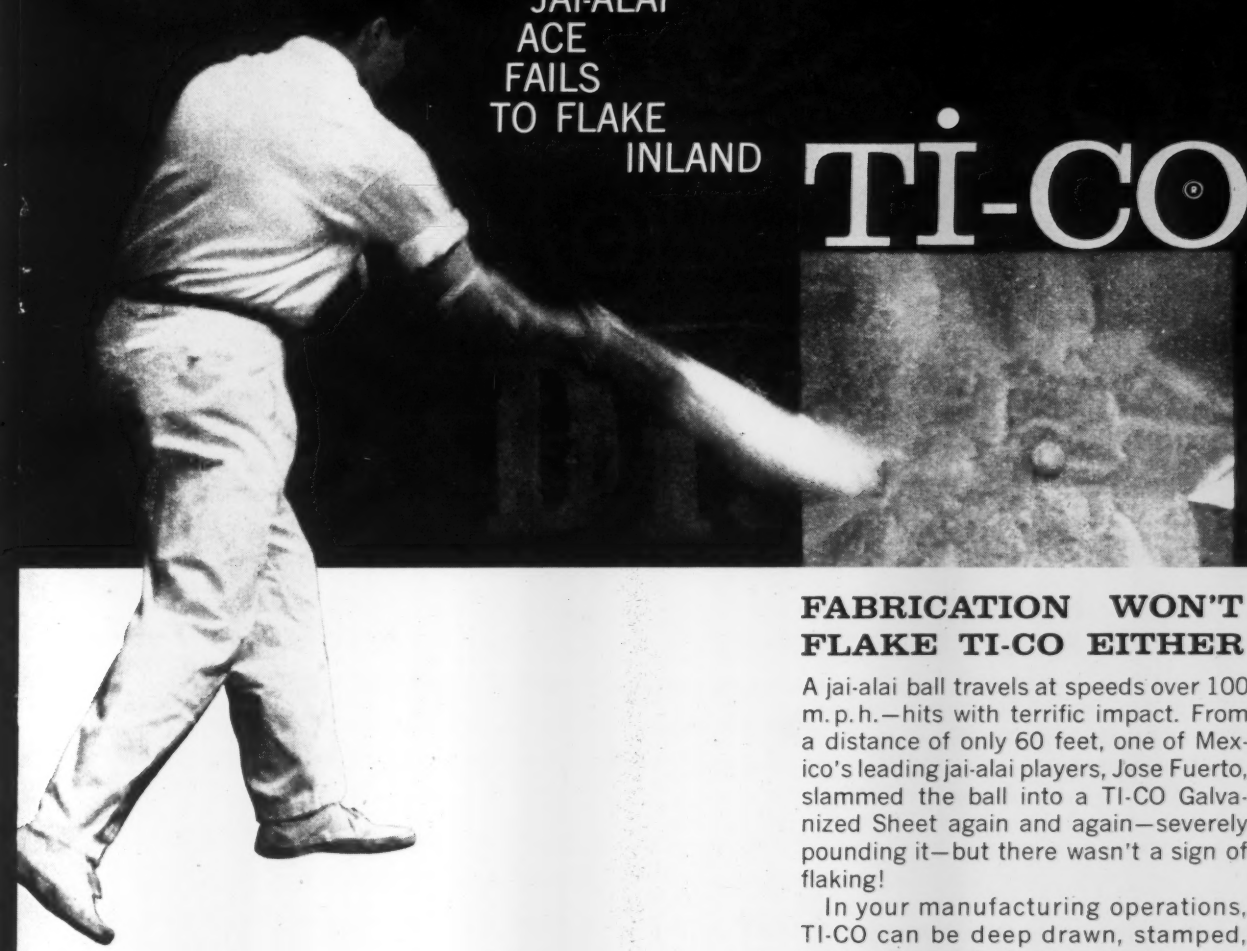
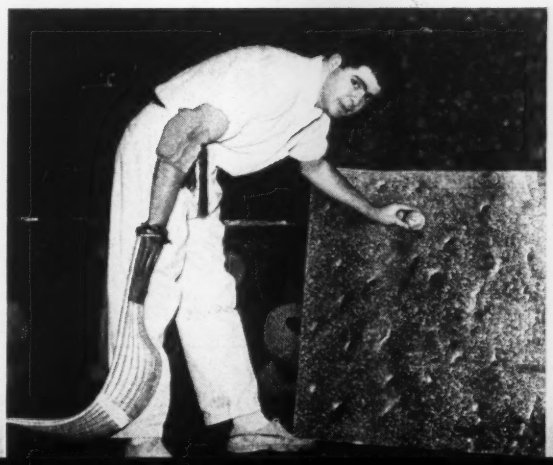
TI-CO



FABRICATION WON'T FLAKE TI-CO EITHER

A jai-alai ball travels at speeds over 100 m.p.h.—hits with terrific impact. From a distance of only 60 feet, one of Mexico's leading jai-alai players, Jose Fuerto, slammed the ball into a TI-CO Galvanized Sheet again and again—severely pounding it—but there wasn't a sign of flaking!

In your manufacturing operations, TI-CO can be deep drawn, stamped, bent, crimped, lock-seamed, even spin-drawn, without flaking or peeling. In fact, any product that can be made from cold rolled steel can be made from TI-CO, giving your product dependable protection against corrosion and an eye-appealing finish that can mean stepped-up saleability.



If you are designing or manufacturing a metal product that requires rugged strength plus corrosion resistance, you'll find TI-CO Galvanized Sheets the practical and economical solution. Coils or cut lengths up to 60" widths; gages 8 to 30 inclusive. Consult your local steel distributor or Inland representative. Write today for a free, informative booklet on TI-CO.

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Refractories

Fire Clay Brick (per 1000)

High-Heat Duty: Ashland, Grahn, Hayward, Hitchens, Haldeman, Olive Hill, Ky., Athens, Troup, Tex., Beech Creek, Clearfield, Curwensville, Lock Haven, Lumber, Orviston, West Decatur, Winburne, Snow Shoe, Pa., Bessemer, Ala., Farber, Mexico, St. Louis, Vandalia, Mo., Ironton, Oak Hill, Parrall, Portsmouth, Ohio, Ottawa, Ill., Stevens Pottery, Ga., $140; Salina, Pa., $145; Niles, Ohio, $138; Cutler, Utah, $165.

Super-Duty: Ironton, Ohio, Vandalia, Mo., Olive Hill, Ky., Clearfield, Salina, Winburne, Snow Shoe, Pa., New Savage, Md., St. Louis, $185; Stevens Pottery, Ga., $195; Cutler, Utah, $233.

Silica Brick (per 1000)

Standard: Alexandria, Claysburg, Mt. Union, Sproul, Pa., Ensley, Ala., Pt. Matilda, Pa., Portsmouth, Ohio, Hawstone, Pa., $158; Warren, Niles, Windham, Ohio, Hays, Latrobe, Morrisville, Pa., $163; E. Chicago, Ind., Joliet, Rockdale, Ill. $168; Lehigh, Utah, $175; Los Angeles, $180.

Super-Duty: Sproul, Hawstone, Pa., Niles, Warren, Windham, Ohio, Leslie, Md., Athens, Tex., $157; Morrisville, Hays, Latrobe, Pa., $168; E. Chicago, Ind., $167; Curtner, Calif., $182.

Semisilica Brick (per 1000)

Clearfield, Pa., $140; Philadelphia, $137; Woodbridge, N. J., $135.

Ladle Brick (per 1000)

Dry Pressed: Alsey, Ill., Chester, New Cumberland, W. Va., Freeport, Johnstown, Merrill Station, Vanport, Pa., Mexico, Vandalia, Mo., Wellsville, Irondale, New Salisbury, Ohio, $96.75; Clearfield, Pa., Portsmouth, Ohio, $102.

High-Alumina Brick (per 1000)

50 *Per Cent:* St. Louis, Mexico, Vandalia, Mo., $235; Danville, Ill., $253; Philadelphia, Clearfield, Pa., $230; Orviston, Snow Shoe, Pa., $260.

60 *Per Cent:* St. Louis, Mexico, Vandalia, Mo., $295; Danville, Ill., $313; Clearfield, Orviston, Snow Shoe, Pa., $320; Philadelphia, $310.

70 *Per Cent:* St. Louis, Mexico, Vandalia, Mo., $335; Danville, Ill., $353; Clearfield, Orviston, Snow Shoe, Pa., $360; Philadelphia, $350.

Sleeves (per 1000)

Reesdale, Johnstown, Bridgeburg, Pa., St. Louis, $188.

Nozzles (per 1000)

Reesdale, Johnstown, Bridgeburg, Pa., St. Louis, $310.

Runners (per 1000)

Reesdale, Johnstown, Bridgeburg, Pa., $234.

Dolomite (per net ton)

Domestic, dead-burned, bulk, Billmeyer, Blue Bell, Williams, Plymouth Meeting, York, Pa., Millville, W. Va., Bettsville, Millersville, Martin, Woodville, Gibsonburg, Narlo, Ohio, $16.75; Thornton, McCook, Ill., $17; Dolly Siding, Bonne Terre, Mo., $15.60.

Magnesite (per net ton)

Domestic, dead-burned, ½ in. grains with fines; Chewelah, Wash., Luning, Nev., $46; ⅝ in. grains with fines: Baltimore, $73.

Fluorspar

Metallurgical grades, f.o.b. shipping point in Ill., Ky., net tons, carloads, effective CaF_2 content 72.5%, $37-$41; 70%, $36-$40; 60%, $33-$36.50. Imported, net ton, f.o.b. cars point of entry, duty paid, metallurgical grade: European, $29-$31, contract; Mexican, all rail, duty paid, $25; barge, Brownsville, Tex., $26.

Ores

Lake Superior Iron Ore

(Prices effective for the 1958 shipping season, gross ton, 51.50% iron natural, rail of vessel, lower lake ports.)

Mesabi bessemer	$11.60
Mesabi nonbessemer	11.45
Old Range bessemer	11.85
Old Range nonbessemer	11.70
Open-hearth lump	12.70
High phos	11.45

The foregoing prices are based on upper lake rail freight rates, lake vessel freight rates, handling and unloading charges, and taxes thereon, which were in effect Jan. 30, 1957, and increases or decreases after that date are absorbed by the seller.

Eastern Local Iron Ore

Cents per unit, deld. E. Pa.

New Jersey, foundry and basic concentrates 62-64%	18.00-19.00

Foreign Iron Ore

Cents per unit, c.i.f. Atlantic ports

Swedish basic, 65%	25.00
N. African hematite (spot)	nom
Brazilian iron ore, 68.5%	26.00

Tungsten Ore

Net ton, unit

Foreign wolframite, good commercial quality	$8.25-8.75*
Domestic, concentrates f.o.b. milling points	16.00-17.00†

*Before duty. †Nominal.

Manganese Ore

Mn 46-48%, Indian (export tax included) $1.10 per long ton unit, c.i.f. U. S. ports, duty for buyer's account; other than Indian, nominal; contracts by negotiation.

Chrome Ore

Gross ton, f.o.b. cars New York, Philadelphia, Baltimore, Charleston, S. C., plus ocean freight differential for delivery to Portland, Oreg., Tacoma, Wash.

Indian and Rhodesian	
48% 3:1	$42.00-44.00
48% 2.8:1	38.00-40.00
48% no ratio	29.00-31.00
South African Transvaal	
44% no ratio	22.00-23.00
48% no ratio	29.00-31.00
Turkish	
48% 3:1	51.00-55.00
Domestic	
Rail nearest seller	
18% 3:1	39.00

Molybdenum

Sulfide concentrate, per lb of Mo content, mines, unpacked	$1.23

Antimony Ore

Per short ton unit of Sb content, c.i.f. seaboard

50-55%	$2.25-2.40
60-65%	2.50-3.10

Vanadium Ore

Cents per lb V.O.

Domestic	31.00

Metal Powder

(Per pound f.o.b. shipping point in ton lots for minus 100 mesh, except as noted)

	Cents
Sponge Iron, Swedish: deld. east of Mississippi River, ocean bags 23,000 lb and over	10.50
F.o.b. Riverton or Camden, N. J., west of Mississippi River	9.50
Sponge Iron, Domestic, 99 + % Fe: Deld. east of Mississippi River, 23,000 lb and over	10.50
Electrolytic Iron, Melting stock, 99.87% Fe, irregular fragments of ⅛ in. x 1.3 in.	28.75
(In contract lots of 240 tons price is 22.75c)	
Annealed, 99.5% Fe	36.50
Unannealed (99 + % Fe)	36.00
Unannealed (99 + % Fe) (minus 325 mesh)	59.00
Powder Flakes (minus 16, plus 100 mesh)	29.00
Carbonyl Iron: 98.1-99.9%, 3 to 20 microns, depending on grade. 93.00-290.00 in standard 200-lb containers; all minus 200 mesh	
Aluminum: Atomized, 500-lb drum, freight allowed Carlots	38.50
Ton lots	40.50
Antimony, 500-lb lots	42.00*
Brass, 5000-lb lots	*32.80-48.80†*
Bronze, 5000-lb lots	*49.60-53.70†*
Copper: Electrolytic	*14.25**
Reduced	*14.25**
Lead	7.50*
Manganese: Minus 35 mesh	64.00
Minus 100 mesh	70.00
Minus 200 mesh	75.00
Nickel, unannealed	74.00
Nickel-Silver, 5000-lb lots	*50.80-55.30†*
Phosphor-Copper, 5000-lb lots	*61.80*
Copper (atomized) 5000-lb lots	*42.30-50.80†*
Silicon	47.50
Solder	7.00*
Stainless Steel, 304	$1.07
Stainless Steel, 316	$1.26
Tin	14.00*
Zinc, 5000-lb lots	18.50-31.70‡
Tungsten:	Dollars
Melting grade, 99% 60 to 200 mesh, nominal:	
1000 lb and over	3.15
Less than 1000 lb	3.30
Chromium, electrolytic 99.8% Cr min metallic basis	5.00

*Plus cost of metal. †Depending on composition. ‡Depending on mesh.

Electrodes

Threaded with nipple; unboxed, f.o.b. plant

GRAPHITE

Diam (Inches)	Length (Inches)	Per 100 lb
2	24	$60.75
2½	30	39.25
3	40	37.00
4	40	35.00
5⅛	40	34.75
6	60	31.50
7	60	28.25
8, 9, 10	60	28.00
12	72	26.75
14	60	26.75
16	72	25.75
17	60	26.25
18	72	26.25
20	72	25.25
24	84	26.00

CARBON

8	60	13.30
10	60	13.00
12	60	12.95
14	60	12.85
14	72	11.95
17	60	11.85
17	72	11.40
20	84	11.40
20	99	11.00
24	72, 84	11.25
24	96	10.95
30	84	11.05
40, 35	110	10.70
40	100	10.70

Metallurgical Coke

Price per net ton

Beehive Ovens

Connellsville, Pa., furnace	$14.75-15.75
Connellsville, Pa., foundry	18.00-18.50

Oven Foundry Coke

Birmingham, ovens	$28.85
Cincinnati, deld.	31.84
Buffalo, ovens	30.50
Camden, N. J., ovens	29.50
Detroit, ovens	30.50
Pontiac, Mich., deld.	32.45
Saginaw, Mich., deld.	34.03
Erie, Pa., ovens	30.50
Everett, Mass., ovens: New England, deld.	31.55*
Indianapolis, ovens	29.75
Ironton, Ohio, ovens	29.00
Cincinnati, deld.	31.84
Kearny, N. J., ovens	29.75
Milwaukee, ovens	30.50
Neville Island (Pittsburgh), Pa., ovens	29.25
Painesville, Ohio, ovens	30.50
Cleveland, deld.	32.69
Philadelphia, ovens	29.50
St. Louis, ovens	31.50
St. Paul, ovens	29.75
Chicago, deld.	33.18
Swedeland, Pa., ovens	29.50
Terre Haute, Ind., ovens	29.75

*Ore within $5.15 freight zone from works.

Coal Chemicals

Spot, cents per gallon, ovens

Pure benzene	31.00‡
Toluene, one deg (deld.)	25.00*
Industrial xylene	29.00§

Per ton, bulk, ovens

Ammonium sulfate	$32.00-35.00†

Cents per pound, producing point

Phenol: Grade 1, 17.50; Grade 2-3, 15.50; Grade 4, 17.50; Grade 5, 16.50; Grade 6, 14.50.	

Effective: *Apr. 12; †July 1; ‡July 8; §Aug. 12.

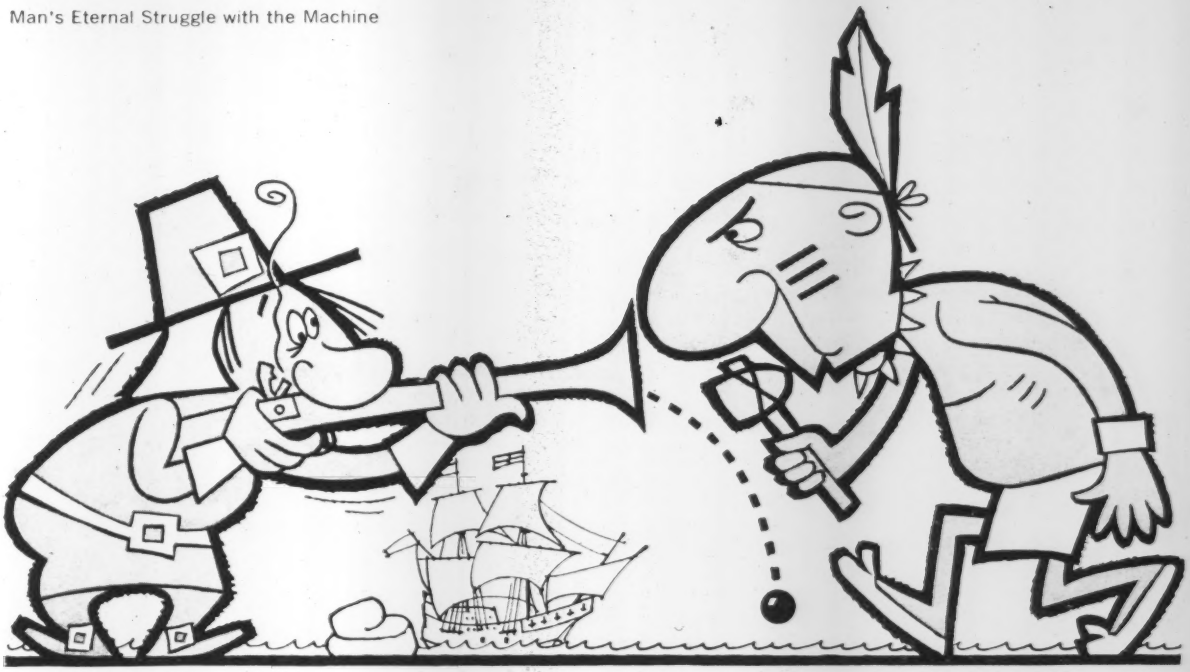
Imported Steel

(Base per 100 lb, landed, duty paid, based on current ocean rates. Any increase in these rates is for buyer's account. Source of shipment: Western continental European countries.)

	North Atlantic	South Atlantic	Gulf Coast	West Coast
Deformed Bars, Intermediate, ASTM-A 305	$5.05	$5.05	$4.95	$5.40
Bar Size Angles	5.05	5.05	5.00	5.38
Structural Angles	5.05	5.05	5.05	5.38
I-Beams	5.11	5.11	5.11	5.45
Channels	5.11	5.11	5.11	5.45
Plates (basic bessemer)	6.62	6.62	6.62	6.94
Sheets, H.R.	8.20	8.20	8.20	8.50
Sheets, C.R. (drawing quality)	8.75	8.75	8.75	9.12
Furring Channels, C.R., 1000 ft, ¾ x 0.30 lb per ft	25.71	25.59	25.59	26.46
Barbed Wire (†)	6.65	6.65	6.65	7.00
Merchant Bars	5.40	5.40	5.35	5.90
Hot-Rolled Bands	7.15	7.15	7.15	7.55
Wire Rods, Thomas Commercial No. 5	5.05	5.18	5.00	5.35
Wire Rods, O.H. Cold Heading Quality No. 5	5.80	5.93	5.75	6.05
Bright Common Wire Nails (§)	8.02	8.02	7.92	8.20

†Per 82 lb net reel. §Per 100-lb kegs, 20d nails and heavier.

Man's Eternal Struggle with the Machine



RISING COSTS AND SHRINKING PROFITS EXERT UNUSUAL PRESSURES ON PROCUREMENT

What is the risk of letting conditions tempt you to select the lowest bid?

You're in a tough spot to say the least!

Because if you care at all about *your* future or your company's profits, you take every precaution to make sure that "real deal" price tag is hanging on a machine that *will* do your job.

Obviously, price alone is indicative of nothing more than the bidder's determination of cost, plus the profit any manufacturer must earn to remain in business—nothing more—no true suggestion of value . . . and, of course, never even a hint of equipment suitability to *your* needs.

Unfortunately, the lowest bid often results from price cutting under competitive pressures. And price cutting *necessarily* down grades equipment value—unless the price-cutter is in business for reasons other than making a profit!

Sciaky resistance welding and production equipment *must* satisfy *your* manufacturing requirements. And Sciaky manufacturing operations must earn a profit just as your company must. That's why Sciaky *first* determines what *will* satisfy your requirements, and then figures the cost of putting it to work for you.

Why take less than the full advantage of consulting with a Sciaky Application Engineer the next time you are considering equipment. No obligation, of course.

Recently a procurement official boasted of his subterfuge to reduce costs . . . "tell every vendor his bid is way out of line, and you can brow-beat them into substantial price reductions." Besides the question of ethics, he's cheating his company of its ability to manufacture profitably, as well. Because no vendor can deliver more than he gets paid for—that is, not if he intends to stay in business. When that official's manufacturing operations begin to sag under the dead weight of phony equipment bargains, who do you suppose is going to be holding the proverbial bag?

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SCIAKY BROS., INC., 4909 W. 67th STREET. CHICAGO 38, ILLINOIS • POrtsmouth 7-5600

Scrap Price Index Begins To Slip

STEEL's composite on prime grades declines to $42, off 33 cents due to easiness in the East. Demand for dealer material hurt by increased use of hot metal

Scrap Prices, Page 130

Philadelphia—Major open hearth grades of scrap are off $1 a ton, with reductions in electric furnace bundles and rail crops. Domestic demand is light and foreign inquiry is nil. Also, an easing factor is plentiful supplies of No. 2 bundles.

Latest revisions bring No. 1 heavy melting, No. 1 bundles and No. 1 busheling to $40, delivered, No. 2 heavy melting to $36, and No. 2 bundles to $24. Electric furnace bundles are now $42-$43 delivered, and rail crops, 2 ft and under, $57-$59. All grades of borings and turnings are easy but nominally unchanged. Steadiness is noted in low phos structurals and plates, and in couplers, springs, and wheels—also the cast grades.

New York—A decline in European buying and lack of pressure from domestic consumers have caused brokers to reduce their buying prices on No. 1 heavy melting and No. 1 bundles to $31-$32, and on No. 2 heavy melting to $27-$28. All other grades are unchanged, including cast and stainless.

Boston — Steel scrap shipments from New England are light with prices little changed. No. 2 bundles are slow, and tonnage is accumulating. A mild improvement in foundry operations has not stimulated cast scrap buying much. Foundries are holding down inventories. The cast grades are firmer, but prices have not increased.

Pittsburgh—Dealers are disposed to hold out for higher prices, but there's little likelihood of an upward movement during the next few weeks. Buyers are being told to keep their stockpiles to a minimum. A specialty mill is getting along on a ten-day inventory.

Some dealers assert they won't sell No. 1 heavy melting scrap for less than $45, but others, hard pressed for cash, are delivering small tonnages at $41. The major mills have given no indication they'll resume buying in November. But if they do, the price of No. 1 scrap might jump to $48 or $50. Brokers expect the industrial lists to close $1 or $2 lower this month.

Chicago — Lack of consumer interest keeps the scrap market quiet. No price test is expected until demand improves markedly. Some sellers think buyers will not be able to acquire significant tonnages short of $1 to $2 above present quotations. A bearish influence is the strong possibility that the steelmaking rate may be at, or close to, the year's peak. In 15 weeks the district rate has climbed from 60.5 per cent of capacity to 85 per cent. Ten blast furnaces here are still idle, and they will be a factor in keeping scrap prices in check.

Cleveland—Bids on month-end automotive scrap lists are expected to set the price trend. Expectations are industrial tonnages will be larger, holding down bids. Dealer scrap is moving sluggishly. Not much change in the situation is expected

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- Notches
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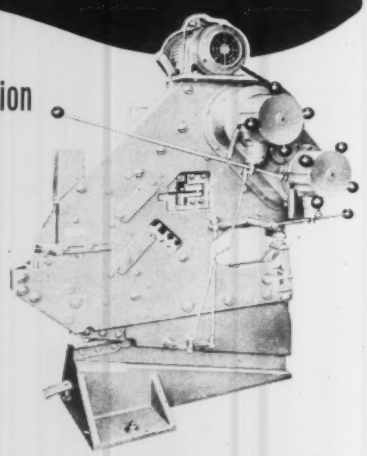

PARTIAL SPECIFICATIONS	MODEL T-15	MODEL T-25
Punch Capacity	7/8" x 7/16"	1" x 9/16"
Shears Plate	7/16"	1/2"
Shears Angles (square cuts)	3-1/8" x 5/16"	4" x 3/8"
Shears Rounds	1-3/16"	1-3/8"

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CRUCIBLE STEEL CASTING CO.
LANSDOWNE 2, PENNA.

STEELMAKING SCRAP PRICE COMPOSITE
Based on No. 1 heavy melting grade at Pittsburgh, Chicago, and eastern Pennsylvania—Compiled by STEEL.
1957
1958
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC
Oct. 29 1958 $42.00
Week Ago $42.33
Month Ago $43.00
Year Ago $35.33
Sept. Avg. $42.87

until steelmaking operations hit 85 per cent of capacity. Idle blast furnace capacity serves to restrain enthusiasm among scrapmen despite the brighter prospects for steelmaking.

Youngstown—Recent sales of auto list scrap were down $1.25 to $1.50 a ton, throwing something of a scare into local dealers and brokers. They've been waiting for a clearcut indication of the market trend, and the auto lists may be pointing the way for the market generally. One major buyer here is getting enough scrap from the auto lists to carry operations along without buying from its usual scrap sources.

Detroit — More automotive scrap and the backup of material from canceled export orders make dealers and brokers feel the market will tend downward during November. Several General Motors plants had some October overshipments that have been turned down by brokers and dealers. Chevrolet lists closed early last week, and prices were off $1.50 to $1.75 a ton.

Chrysler's November auto lists show an estimated 420 cars of No. 1 grades which is 1000 tons larger than the offering this month. Chrysler sources say they expect this estimate to prove low, and that increased production will boost November scrap generation. Fisher Body plants say the same about their lists.

Buffalo—Dealer scrap is moving slowly. Reason: Mills are using more of their own hot metal, and the flow of production scrap is heavier than it was. Prices are steady but untested. Larger offerings of prime grades are expected in November industrial lists.

Cincinnati—Prices are unchanged, but traders think the next market movement will be upward. Area steelmakers are expected to pay at least $1 more for the principal steelmaking grades. The district ingot rate is above 80 per cent of capacity and scrapmen think a good demand for melting material will develop in the weeks ahead.

St. Louis—Open hearth grades of scrap are quoted up $1 a ton here, but demand is little changed. Not much material is coming into yards, but dealers' holdings are substantial. Still they decline to liquidate their stocks at prices lower than now quoted.

Birmingham—Deliveries are being made on orders for open hearth grades placed early this month. But brokers have cut their quotation $1 a ton on No. 1 heavy melting. This followed a purchase of No. 2 steel by a district mill at unchanged prices. Cast iron consumers are still filling their requirements at unchanged prices. Demand for electric furnace material is slow. Export trade is inactive.

Houston—Brokers' buying prices are unchanged on the basis of a mill order that will run until Dec. 1. The mill, which bought a fairly heavy tonnage, paid the same prices it did on an earlier order. The new order carries a springboard price for scrap from remote areas.

Some exporters continue to lay down material at various Gulf ports,

(*Please turn to Page* 135)

Aftercooler and Cyclone Separator designed for cleaner, dryer compressed air

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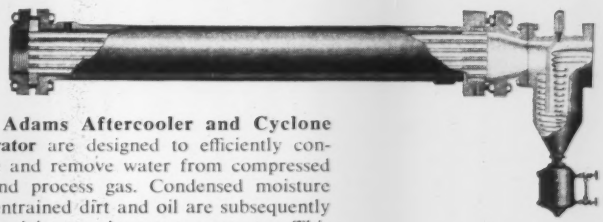
222 East Park Drive, Buffalo 17, New York



The Adams Aftercooler and Cyclone Separator are designed to efficiently condense and remove water from compressed air and process gas. Condensed moisture and entrained dirt and oil are subsequently removed in a cyclone type separator. This unit is scientifically designed for maximum removal efficiency over a wide range of flow rates.

For normal use, units are available to cool gases to within 10° F of the temperature of the cooling water. Specially designed units are available to permit a 2° F approach to cooling water temperature, for application where low moisture content is critical.

Adams Aftercoolers and Separators are available from stock to handle 20 - 40,000 cfm with 10° cooling and 25 - 19,200 cfm where it is necessary to cool within 2°F of the cooling water. Special units can be supplied to suit an unlimited range of requirements. In all cases the maximum pressure loss at rated capacities is ½ psi.

This wide range of sizes enables the economical utilization of Adams Aftercoolers and Separators in virtually all industrial application. For further information on how R. P. Adams' units will solve your compressed air problems and save you money, write today for Bulletin 711.

Iron and Steel Scrap

Consumer prices per gross ton, except as otherwise noted, including brokers' commission, as reported to STEEL, Oct. 29, 1958. *Changes shown in italics.*

STEELMAKING SCRAP COMPOSITE

Oct. 29	$42.00
Oct. 22	42.33
Sept. Avg	42.87
Oct. 1957	37.37
Oct. 1953	32.75

Based on No. 1 heavy melting grade at Pittsburgh, Chicago, and eastern Pennsylvania.

PITTSBURGH

No. 1 heavy melting	43.00-44.00
No. 2 heavy melting	34.00-35.00
No. 1 dealer bundles	43.00-44.00
No. 2 bundles	31.00-32.00
No. 1 busheling	43.00-44.00
No. 1 factory bundles	47.00-48.00
Machine shop turnings	20.00-21.00
Mixed borings, turnings	20.00-21.00
Short shovel turnings	24.00-25.00
Cast iron borings	24.00-25.00
Cut structurals:	
2 ft and under	*48.00-49.00*
3 ft lengths	*47.00-48.00*
Heavy turnings	34.00-35.00
Punchings & plate scrap	*48.00-49.00*
Electric furnace bundles	48.00-49.00

Cast Iron Grades

No. 1 cupola	44.00-45.00
Stove plate	41.00-42.00
Unstripped motor blocks	31.00-32.00
Clean auto cast	39.00-40.00
Drop broken machinery	51.00-52.00

Railroad Scrap

No. 1 R.R. heavy melt.	*46.00-47.00*
Rails, 2 ft and under	57.00-58.00
Rails, 18 in. and under	58.00-59.00
Random rails	54.00-55.00
Railroad specialties	52.00-53.00
Angles, splice bars	52.00-53.00
Rails, rerolling	60.00-61.00

Stainless Steel Scrap

18-8 bundles & solids	225.00-230.00
18-8 turnings	*125.00-130.00*
430 bundles & solids	125.00-130.00
430 turnings	*55.00-65.00*

CHICAGO

No. 1 hvy melt, indus.	43.00-45.00
No. 1 heavy melt, dealer	40.00-41.00
No. 2 heavy melting	34.00-35.00
No. 1 factory bundles	45.00-46.00
No. 1 dealer bundles	41.00-42.00
No. 2 bundles	28.00-29.00
No. 1 busheling, indus.	43.00-45.00
No. 1 busheling, dealer	40.00-41.00
Machine shop turnings	21.00-22.00
Mixed borings, turnings	23.00-24.00
Short shovel turnings	23.00-24.00
Cast iron borings	23.00-24.00
Cut structurals, 3 ft	46.00-47.00
Punchings & plate scrap	47.00-48.00

Cast Iron Grades

No. 1 cupola	45.00-46.00
Stove plate	43.00-44.00
Unstripped motor blocks	37.00-38.00
Clean auto cast	51.00-52.00
Drop broken machinery	51.00-52.00

Railroad Scrap

No. 1 R.R. heavy melt.	45.00-46.00
R. R. malleable	55.00-56.00
Rails, 2 ft and under	58.00-59.00
Rails, 18 in. and under	59.00-60.00
Angles, splice bars	54.00-55.00
Axles	67.00-68.00
Rails, rerolling	62.00

Stainless Steel Scrap

18-8 bundles & solids	215.00-220.00
18-8 turnings	120.00-125.00
430 bundles & solids	115.00-120.00
430 turnings	55.00-60.00

YOUNGSTOWN

No. 1 heavy melting	43.00-44.00
No. 2 heavy melting	30.00-31.00
No. 1 busheling	43.00-44.00
No. 1 bundles	43.00-44.00
No. 2 bundles	30.00-31.00
Machine shop turnings	15.00-16.00
Short shovel turnings	20.00-21.00
Cast iron borings	20.00-21.00
Low phos.	45.00-46.00
Electric furnace bundles	45.00-46.00

Railroad Scrap

No. 1 R.R. heavy melt.	45.00-46.00

CLEVELAND

No. 1 heavy melting	39.50-40.50
No. 2 heavy melting	26.00-27.00
No. 1 factory bundles	44.00-45.00
No. 1 bundles	39.50-40.50
No. 2 bundles	30.50-31.50
No. 1 busheling	39.50-40.50
Machine shop turnings	14.00-15.00
Short shovel turnings	20.00-21.00
Mixed borings, turnings	20.00-21.00
Cast iron borings	20.00-21.00
Cut foundry steel	40.00-41.00
Cut structurals, plates 2 ft and under	47.00-48.00
Low phos. punchings & plate	41.00-42.00
Alloy free, short shovel turnings	22.00-23.00
Electric furnace bundles	40.50-41.50

Cast Iron Grades

No. 1 cupola	44.00-45.00
Charging box cast	37.00-38.00
Heavy breakable cast	36.00-37.00
Stove plate	43.00-44.00
Unstripped motor blocks	32.00-33.00
Brake shoes	36.00-37.00
Clean auto cast	49.00-50.00
Burnt cast	33.00-34.00
Drop broken machinery	49.00-50.00

Railroad Scrap

R.R. malleable	60.00-61.00
Rails, 2 ft and under	57.00-58.00
Rails, 18 in. and under	58.00-59.00
Rails, random lengths	52.00-53.00
Cast steel	49.00-50.00
Railroad specialties	50.00-51.00
Uncut tires	43.00-44.00
Angles, splice bars	50.00-51.00
Rails, rerolling	56.00-57.00

Stainless Steel

(Brokers' buying prices; f.o.b. shipping point)

18-8 bundles, solids	200.00-210.00
18-8 turnings	110.00-115.00
430 clips, bundles, solids	100.00-110.00
430 turnings	40.00-50.00

ST. LOUIS

(Brokers' buying prices)

No. 1 heavy melting	*38.00*
No. 2 heavy melting	*36.00*
No. 1 bundles	*40.00*
No. 2 bundles	*29.00*
No. 1 busheling	*40.00*
Machine shop turnings	20.00†
Short shovel turnings	22.00†

Cast Iron Grades

No. 1 cupola	49.00
Charging box cast	40.00
Heavy breakable cast	38.00
Unstripped motor blocks	39.00
Clean auto cast	49.00
Stove plate	46.00

Railroad Scrap

No. 1 R.R. heavy melt.	45.50
Rails, 18 in. and under	52.00†
Rails, random lengths	47.50
Rails, rerolling	62.25
Angles, splice bars	47.00

BIRMINGHAM

No. 1 heavy melting	*38.00-39.00*
No. 2 heavy melting	30.00-31.00†
No. 1 bundles	*38.00-39.00*
No. 2 bundles	*24.00-25.00*
No. 1 busheling	*38.00-39.00*
Cast iron borings	13.00-14.00
Machine shop turnings	24.00-25.00
Short shovel turnings	25.00-26.00
Bars, crops and plates	*45.00-46.00*
Structurals & plates	*44.00-45.00*
Electric furnace bundles	40.00-41.00
Electric furnace:	
2 ft and under	38.00-39.00
3 ft and under	37.00-38.00

Cast Iron Grades

No. 1 cupola	54.00-55.00
Stove plate	*53.00-54.00*
Unstripped motor blocks	43.00-44.00
Charging box cast	29.00-30.00
No. 1 wheels	*44.00-45.00*

Railroad Scrap

No. 1 R.R. heavy melt.	39.00-40.00
Rails, 18 in. and under	52.00-53.00
Rails, rerolling	59.00-60.00
Rails, random lengths	48.00-49.00
Angles, splice bars	48.00-49.00

PHILADELPHIA

No. 1 heavy melting	*40.00*
No. 2 heavy melting	*36.00*
No. 1 bundles	*40.00*
No. 2 bundles	*24.00*
No. 1 busheling	*40.00*
Electric furnace bundles	*42.00-43.00*
Mixed borings, turnings	20.00-21.00†
Short shovel turnings	24.00-25.00†
Machine shop turnings	20.00-21.00†
Heavy turnings	34.00-35.00†
Structurals & plate	44.00-45.00
Couplers, springs, wheels	48.00
Rail crops, 2 ft & under	*57.00-59.00*

Cast Iron Grades

No. 1 cupola	41.00
Heavy breakable cast	43.00
Malleable	58.00
Drop broken machinery	49.00-50.00

NEW YORK

(Brokers' buying prices)

No. 1 heavy melting	*31.00-32.00*
No. 2 heavy melting	*27.00-28.00*
No. 1 bundles	*31.00-32.00*
No. 2 bundles	19.00-20.00
Machine shop turnings	10.00-11.00
Mixed borings, turnings	11.00-12.00
Short shovel turnings	14.00-15.00
Low phos. (structurals & plates)	37.00-38.00

Cast Iron Grades

No. 1 cupola	36.00-37.00
Unstripped motor blocks	28.00-29.00
Heavy breakable	33.00-34.00

Stainless Steel

18-8 sheets, clips solids	190.00-195.00
18-8 borings, turnings	90.00-95.00
410 sheets, clips, solids	65.00-70.00
430 sheets, clips, solids	85.00-90.00

BUFFALO

No. 1 heavy melting	35.00-36.00
No. 2 heavy melting	29.00-30.00
No. 1 bundles	35.00-36.00
No. 2 bundles	27.00-28.00
No. 1 busheling	35.00-36.00
Mixed borings, turnings	17.00-18.00
Machine shop turnings	15.00-16.00
Short shovel turnings	19.00-20.00
Cast iron borings	17.00-18.00
Low phos. structurals and plate, 2 ft and under	41.00-42.00

Cast Iron Grades (F.o.b. shipping point)

No. 1 cupola	44.00-45.00
No. 1 machinery	48.00-49.00

Railroad Scrap

Rails, random lengths	51.00-52.00
Rails, 3 ft and under	57.00-58.00
Railroad specialties	43.00-44.00

CINCINNATI

(Brokers' buying prices; f.o.b. shipping point)

No. 1 heavy melting	37.50-38.50
No. 2 heavy melting	32.50-33.50
No. 1 bundles	37.50-38.50
No. 2 bundles	25.00-26.00
No. 1 busheling	37.50-38.50
Machine shop turnings	18.00-19.00
Mixed borings, turnings	18.00-19.00
Short shovel turnings	20.00-21.00
Cast iron borings	18.00-19.00
Low phos, 18 in.	45.00-46.00

Cast Iron Grades

No. 1 cupola	43.00-44.00
Heavy breakable cast	36.00-37.00
Charging box cast	34.00-35.00
Drop broken machinery	47.00-48.00

Railroad Scrap

No. 1 R.R. heavy melt.	44.00-45.00
Rails, 18 in. and under	55.00-56.00
Rails, random lengths	49.00-50.00

HOUSTON

(Brokers' buying prices; f.o.b. cars)

No. 1 heavy melting	40.00
No. 2 heavy melting	34.00
No. 1 bundles	40.00
No. 2 bundles	25.00
Machine shop turnings	17.00
Short shovel turnings	20.00
Low phos. plates & structurals	45.50

Cast Iron Grades

No. 1 cupola	47.00
Heavy breakable	30.00†
Foundry malleable	41.00
Unstripped motor blocks	37.00

Railroad Scrap

No. 1 R.R. heavy melt.	38.00†

BOSTON

(Brokers' buying prices; f.o.b. shipping point)

No. 1 heavy melting	29.00-30.00
No. 2 heavy melting	23.00-24.00
No. 1 bundles	29.00-30.00
No. 2 bundles	17.00-18.00†
No. 1 busheling	29.00-30.00
Machine shop turnings	9.00-10.00
Short shovel turnings	12.00-13.00
No. 1 cast	33.00-34.00
Mixed cupola cast	33.00-34.00
No. 1 machinery cast	36.00-38.00

DETROIT

(Brokers' buying prices; f.o.b. shipping point)

No. 2 heavy melting	21.00-22.00
No. 1 heavy melting	32.00-33.00
No. 1 bundles	32.00-33.00
No. 2 bundles	20.00-21.00
No. 1 busheling	31.00-32.00
Machine shop turnings	9.00-10.00
Mixed borings, turnings	12.00-13.00
Short shovel turnings	12.00-13.00
Punchings & plate	32.00-33.00

Cast Iron Grades

No. 1 cupola	42.00-43.00
Stove plate	35.00-36.00
Charging box cast	36.00-37.00
Heavy breakable	34.00-35.00
Unstripped motor blocks	18.00-19.00
Clean auto cast	44.00-45.00

SEATTLE

No. 1 heavy melting	30.00†
No. 2 heavy melting	28.00†
No. 1 bundles	22.00†
No. 2 bundles	20.00†
Machine shop turnings	9.00-10.00†
Mixed borings, turnings	9.00-10.00†
Electric furnace No. 1	38.00†

Cast Iron Grades

No. 1 cupola	31.00†
Heavy breakable cast	28.00†
Unstripped motor blocks	23.00†
Stove plate (f.o.b. plant)	21.00†

LOS ANGELES

No. 1 heavy melting	32.00
No. 2 heavy melting	30.00
No. 1 bundles	28.00
No. 2 bundles	17.00
Machine shop turnings	11.00
Shoveling turnings	13.00
Cast iron borings	13.00
Cut structurals and plate 1 ft and under	45.00

Cast Iron Grades (F.o.b. shipping point)

No. 1 cupola	39.00

Railroad Scrap

No. 1 R.R. heavy melt.	32.00

SAN FRANCISCO

No. 1 heavy melting	32.00
No. 2 heavy melting	30.00
No. 1 bundles	30.00
No. 2 bundles	22.00
Machine shop turnings	15.00
Mixed borings, turnings	15.00
Cast iron borings	15.00
Heavy turnings	15.00
Short shovel turnings	15.00
Cut structurals, 3 ft	40.00

Cast Iron Grades

No. 1 cupola	44.00
Charging box cast	34.00
Stove plate	34.00
Heavy breakable cast	28.00
Unstripped motor blocks	31.00
Clean auto cast	40.00
Drop broken machinery	40.00
No. 1 wheels	34.00

HAMILTON, ONT.

No. 1 heavy melting	30.00
No. 2 heavy melting	26.00
No. 1 bundles	30.00
No. 2 bundles	23.00
Mixed steel scrap	25.00
Mixed borings, turnings	15.00
Busheling, new factory: Prepared	30.00
Unprepared	24.00
Short steel turnings	19.00

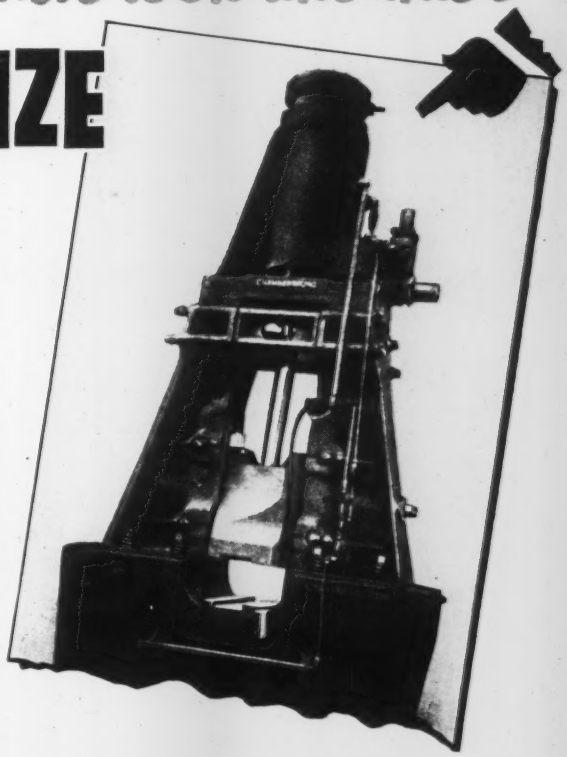
Cast Iron Grades‡

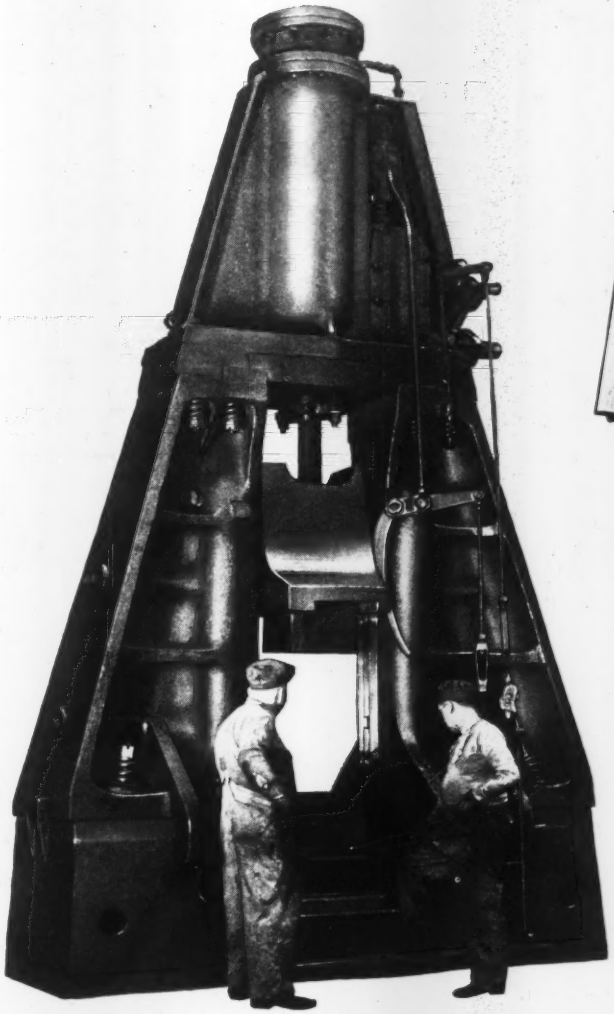
No. 1 machinery cast	45.00-50.00

•Brokers' buying price.
†Nominal.
‡F.o.b. Hamilton, Ont.

Do your Steam Hammers look like this?

TIME TO MODERNIZE





CHAMBERSBURG STEAM DROP HAMMERS

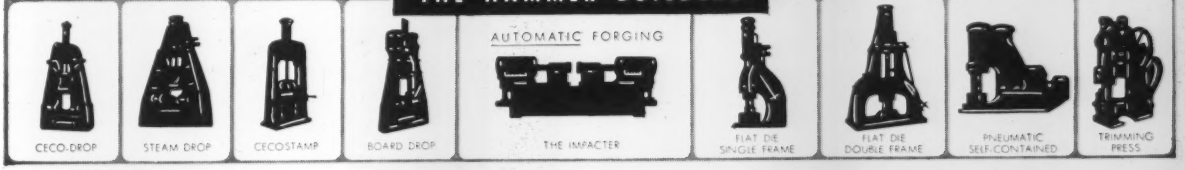
have kept pace with modern forge shop requirements. With Chambersburg Steam Drop Hammers you get more forging per blow and more forgings per hour for higher production. And—at the same time you'll find production savings in lower power consumption, less downtime, better die alignment. Every feature of Chambersburg Hammers is designed to produce forgings at the lowest possible cost per piece.

Write for Bulletin

CHAMBERSBURG ENGINEERING COMPANY . . . . . CHAMBERSBURG, PA.

CHAMBERSBURG

THE HAMMER BUILDERS



Price Spiral Slows Down

The nonferrous market is getting back on an even keel after several weeks of rapid price revisions. Short term outlook: Some sporadic shifting but no major upheavals

Nonferrous Metal Prices, Pages 134 & 135

THE TIDAL WAVE of price fluctuations that has flooded the nonferrous market in recent weeks has crested. Don't rule out more revisions but expect a much less volatile market for copper, lead, and zinc in the near future.

• **Copper**—Anaconda Co. and Kennecott Copper Corp. boosted the primary price by 1.5 cents a pound to 29 cents on Oct. 23. Phelps Dodge Corp. followed the next day. Brass mills and wire and cable makers have upped quotations correspondingly.

Relative price stability for the remainder of the year is predicted by some metalmen even though overseas quotations are bounding all over the map. Probably the main pressure for another hike would be continuation of the strikes in Africa and Canada, which have idled 550,000 tons of annual capacity. The walkout at Kennecott's Chino Div. ended Oct. 23, but another strike has shut down Phelps Dodge's refinery at El Paso, Tex. Available supplies are already getting tight. If the walkouts persist, some shortages may occur.

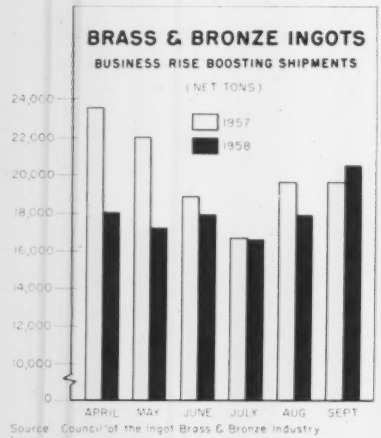
Demand continues to roll along at a good clip. Major producers have upped output to six and seven-day workweeks to satisfy current buying and as a hedge against continuation of the mine strikes.

• **Lead**—After six weeks of good volume, demand for lead has tapered off. It's still fair, but there has been a definite lessening in orders from such major customers as battery manufacturers.

Producers explain that some "scare" buying undoubtedly occurred during the recent series of price increases. It's also apparent other customers bought for inventory replenishment as well as current needs and may not have to come into the market again for several weeks.

Look for lead to hold at 13 cents a pound for the immediate future. The resumption of a workable barter plan seems to be the only factor bullish enough to pace a hike.

The long term price outlook for lead is slightly up, believes John D. Bradley, president of Bunker Hill Co. His estimate: 14 cents a pound by the end of 1959.



Source: Council of the Ingot Brass & Bronze Industry

• **Zinc**—Sales are still good but not as strong as they have been. Demand for prime western from galvanizers continues to be zinc's best market. Special high grade sales to diecasters are fair for some, not so good for others. Says one producer: "Orders for special high grade haven't been anywhere near what we expected. The main reason is that the auto people are still not buying much."

The zinc price is firm at 11 cents a pound and will probably shoot higher before long. Mr. Bradley believes that by the end of next year it will be between 12 and 12.5 cents a pound. Resumption of barter would have the same bullish effect on zinc as it would on lead.

• **More Output**—Recent announcements from some lead and zinc producers indicate plans to step up production of the two metals. Many observers believe the moves are premature, especially in the case of lead where producers' stocks have continued to rise. Their argument: Recently released lead statistics for September show that while domestic refined shipments increased by over 7000 tons to 41,657 tons, producers' refined stocks still went up 1364 tons to 170,666 tons.

Aluminum Catching Up

Shipments of aluminum sheets and plates rose to 100,513,000 lb in September, which brought the nine months total to 873,840,000 lb, reports the Aluminum Association. This compares with shipments of 983,035,000 lb in the first three quarters of last year.

Foil shipments through September hit 140,081,195 lb, compared with 132,129,387 lb in the corresponding period of 1957.

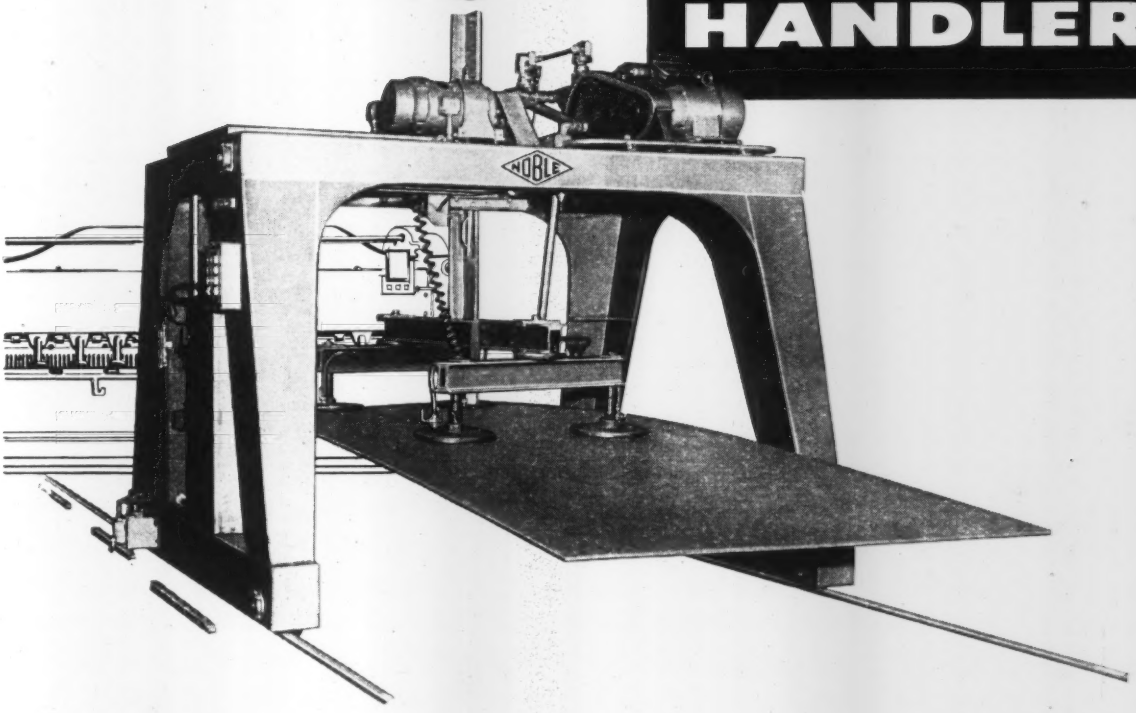
NONFERROUS PRICE RECORD

	Price Oct. 29	Last Change	Previous Price	Sept. Avg	Aug. Avg	Oct., 1957 Avg
Aluminum	24.70	Aug. 1, 1958	24.00	24.700	24.700	26.000
Copper	29.00-30.00	Oct. 24, 1958	27.50-30.00	26.428	26.510	26.361
Lead	12.80	Oct. 14, 1958	12.30	10.730	10.646	13.504
Magnesium	35.25	Aug. 13, 1956	33.75	35.250	35.250	35.250
Nickel	74.00	Dec. 6, 1956	64.50	74.000	74.000	74.000
Tin	97.50	Oct. 29, 1958	97.25	94.120	94.995	91.843
Zinc	11.00	Oct. 8, 1958	10.50	10.000	10.000	10.000

Quotations in cents per pound based on: COPPER, mean of primary and secondary, deld. Conn. Valley; LEAD, common grade, deld. St. Louis; ZINC, prime western, E. St. Louis; TIN, Straits, deld. New York; NICKEL, electrolytic cathodes, 99.9%, base size at refinery, unpacked; ALUMINUM, primary pig, 99.5+%, f.o.b. shipping point; MAGNESIUM, pig, 99.8%, Velasco, Tex.

How to Make Your Shear a Production Tool

-ADD A NOBLE *Automatic* PLATE HANDLER



Faster Plate Handling at Lower Cost

The NOBLE Automatic Plate Handler eliminates the 3 slow, costly and often dangerous manual operations sketched at left. The usual 2- or 3-man crew needed to pry up the plate, attach lifting hooks, operate the crane or hoist and move the plate into position is eliminated. At a touch of the control button, your NOBLE Automatic travels to the stack, picks up a plate, raises it to proper height, brings it right to the ball points or casters and puts it into position for shearing, punching, or whatever operation is required. Machine operators and their helpers spend their time on production, not manhandling plate!

LESS IDLE MACHINE TIME...

With a NOBLE Automatic on the job, there's always a plate ready at the machine — no idle standby while operators help wrestle another one off the pile and onto the feed table. You get maximum earning power out of your machine investment.

INCREASED PRODUCTION...

The natural result of reduced idle machine time and faster plate handling. NOBLE Automatic Plate Handler users report a gain of 20% or more, depending on type of application.

THREE TYPES AVAILABLE...

Standard NOBLE automatic plate handling systems are available in floor-mounted rail, overhead rail and radial transfer types. Standard capacities are 1,000, 2,000, 3,000 and 4,000 lbs.

NEW BROCHURE AVAILABLE... describes economies of automatic plate handling, proper applications, typical system layouts, and all NOBLE equipment involved. Write for your free copy today; please address Dept. S-11.

NOBLE COMPANY

2 1860 Seventh Street
Oakland 20, California

Nonferrous Metals

Cents per pound, carlots except as otherwise noted.

PRIMARY METALS AND ALLOYS

Aluminum: 99.5%, pigs, 24.70; ingots, 26.80, 30,000 lb or more, f.o.b. shipping point. Freight allowed on 500 lb or more.

Aluminum Alloy: No. 13, 28.60; No. 43, 28.40; No. 195, 29.40; No. 214, 30.20; No. 356, 28.60; 30 or 40 lb ingots.

Antimony: R.M.M. brand, 99.5%, 29.00; Lone Star brand, 29.50, f.o.b. Laredo, Tex., in bulk. Foreign brands, 99.5%, 23.50-24.50, New York, duty paid, 10,000 lb or more.

Beryllium: 97% lump or beads, $71.50 per lb, f.o.b. Cleveland or Reading, Pa.

Beryllium Aluminum: 5% Be, $74.75 per lb of contained Be, with balance as Al at market price, f.o.b. shipping point.

Beryllium Copper: 3.75-4.25% Be, $43 per lb of contained Be, with balance as Cu at market price on shipment date, f.o.b. shipping point.

Bismuth: $2.25 per lb, ton lots.

Cadmium: Sticks and bars, $1.45 per lb deld.

Cobalt: 97.99%, $2.00 per lb for 550-lb keg; $2.02 per lb for 100 lb case; $2.07 per lb under 100 lb.

Columbium: Powder, $55-85 per lb, nom.

Copper: Electrolytic, 29.00 deld.; custom smelters, 30.00; lake, 29.00 deld.; fire refined, 28.75 deld.

Germanium: First reduction, $179.17-197.31 per lb; intrinsic grade, $197.31-220 per lb, depending on quantity.

Gold: U. S. Treasury, $35 per oz.

Indium: 99.9%, $2.25 per troy oz.

Iridium: $70-80 nom. per troy oz.

Lead: Common, 12.80; chemical, 12.90; corroding, 12.90, St. Louis. New York basis, add 0.20.

Lithium: 98 + %, 50-100 lb. cups or ingots, $12; rod, $15; shot or wire, $16. 100-500 lb. cups or ingots, $10.50; rod, $14; shot or wire, $15, f.o.b. Minneapolis.

Magnesium: Pig, 35.25; ingot, 36.00 f.o.b. Velasco, Tex.; 12 in. sticks, 59.00 f.o.b. Madison, Ill.

Magnesium Alloys: AZ91A (diecasting), 40.75 deld.; AZ63A, AZ92A, AZ91C (sand casting), 40.75, f.o.b. Velasco, Tex.

Mercury: Open market, spot, New York, $233-236 per 76-lb flask.

Molybdenum: Unalloyed turned extrusions, 3.75-5.75 in. round, $9.60 per lb in lots of 2500 lb or more, f.o.b. Detroit.

Nickel: Electrolytic cathodes, sheets (4 x 4 in. and larger), unpacked, 74.00; 10-lb pigs, unpacked, 78.25; "XX" nickel shot, 79.50; "F" nickel shot for addition to cast iron, 74.50; "F" nickel, 5 lb ingots in kegs for addition to cast iron, 75.50. Prices f.o.b. Port Colborne, Ont., including import duty. New York basis, add 1.01. Nickel oxide sinter at Buffalo, New York, or other established U. S. points of entry, contained nickel, 69.60.

Osmium: $70-100 per troy oz nom.

Palladium: $15-17 per troy oz.

Platinum: $57-60 per troy oz from refineries.

Radium: $16-21.50 per mg radium content, depending on quantity.

Rhodium: $118-125 per troy oz.

Ruthenium: $45-55 per troy oz.

Selenium: $7.00 per lb, commercial grade.

Silver: Open market, 90.375 per troy oz.

Sodium: 17.00 c.l.; 19.00-19.50 l.c.l.

Tantalum: Rod, $60 per lb; sheet, $55 per lb.

Tellurium: $1.65-1.85 per lb.

Thallium: $7.50 per lb.

Tin: Straits, N. Y., spot, 97.50; prompt, 97.375.

Titanium: Sponge, 99.3 + % grade A-1, ductile (0.3% Fe max.), $1.62-1.82; grade A-2 (0.5% Fe max.), $1.70 per lb.

Tungsten: Powder, 89.8%, carbon reduced, 1000-lb lots, $3.15 per lb nom., f.o.b. shipping point; less than 1000 lb, add 15.00; 99 + % hydrogen reduced, $3.30-3.80.

Zinc: Prime Western, 11.00; brass special, 11.25; intermediate, 11.50, East St. Louis, freight allowed over 0.50 per lb. New York basis, add 0.50. High grade, 12.00; special high grade, 12.25 deld. Diecasting alloy ingot No. 3, 13.50; No. 2, 13.75; No. 5, 13.50 deld.

Zirconium: Reactor grade sponge, 100 lb or less, $7 per lb; 100-500 lb, $6.50 per lb; over 500 lb, $6 per lb.

(Note: Chromium, manganese, and silicon metals are listed in ferroalloy section.)

SECONDARY METALS AND ALLOYS

Aluminum Ingot: Piston alloys, 23.50-25.25; No. 12 foundry alloy (No. 2 grade), 21.50-22.00; 5% silicon alloy, 0.60 Cu max., 24.75-25.00; 13 alloy 0.60 Cu max., 24.75-25.00; 195 alloy, 25.25-26.00; 108 alloy, 22.25-22.50. Steel deoxidizing grades, notch bars, granulated or shot: Grade 1, 22.75; grade 2, 21.50; grade 3, 20.50; grade 4, 18.00.

Brass Ingot: Red brass, No. 115, 29.00; tin bronze, No. 225, 38.00; No. 245, 32.75; high-leaded tin bronze, No. 305, 33.25; No. 1 yellow, No. 405, 24.00; manganese bronze, No. 421, 25.75.

Magnesium Alloy Ingot: AZ63A, 37.50; AZ91B, 37.50; AZ91C, 41.25; AZ92A, 37.50.

NONFERROUS PRODUCTS

BERYLLIUM COPPER

(Base prices per lb, plus mill extras, 2000 to 5000 lb; nom. 1.9% Be alloy.) Strip, $1.885, f.o.b. Temple, Pa., or Reading, Pa.; rod, bar, wire, $1.865, f.o.b. Temple, Pa.

COPPER WIRE

Bare, soft, f.o.b. eastern mills, 20,000-lb lots, 34.55; l.c.l., 34.98. Weatherproof, 20,000-lb lots, 35.54; l.c.l., 36.29.

LEAD

(Prices to jobbers, f.o.b. Buffalo, Cleveland, Pittsburgh.) Sheets, full rolls, 140 sq ft or more, $18.50 per cwt; pipe, full coils, $18.50 per cwt; traps and bends, list prices plus 30%.

TITANIUM

(Prices per lb, 10,000 lb and over, f.o.b. mill.) Sheets and strip, $8.50-15.95; sheared mill plate, $6.00-9.50; wire, $6.50-11.00; forging billets, $3.80-4.10; hot-rolled and forged bars, $5.10-5.25.

ZINC

(Prices per lb, c.l., f.o.b. mill.) Sheets, 24.00; ribbon zinc in coils, 20.50; plates, 19.00.

ZIRCONIUM

Plate, $12.50-19.20; H.R. strip, $12.50-22.90; C.R. strip, $15.90-31.25; forged or H.R. bars, $11.00-17.40.

NICKEL, MONEL, INCONEL

	"A" Nickel	Monel	Inconel
Sheets, C.R.	126	106	128
Strip, C.R.	124	108	138
Plate, H.R.	120	105	121
Rod, Shapes, H.R.	107	89	109
Seamless Tubes	157	129	200

ALUMINUM

Sheets: 1100, 3003, and 5005 mill finish (30,000 lb base; freight allowed).

Thickness Range, Inches	Flat Sheet	Coiled Sheet
0.250-0.136	42.80-47.30	.....
0.136-0.096	43.20-48.30	.....
0.126-0.103	.....	39.20-39.80
0.096-0.077	43.80-50.00	39.30-40.00
0.077-0.068	44.30-52.20	.....
0.077-0.061	.....	39.50-40.70
0.068-0.061	44.30-52.20	.....
0.061-0.048	44.90-54.40	40.10-41.80
0.048-0.038	45.40-57.10	40.60-43.20
0.038-0.030	45.70-62.00	41.00-45.70
0.030-0.024	46.20-53.70	41.30-45.70
0.024-0.019	46.90-56.80	42.40-44.10
0.019-0.017	47.70-54.10	43.00-44.70
0.017-0.015	48.60-55.00	43.80-45.50
0.015-0.014	49.60	44.80-46.50
0.014-0.012	50.80	45.50
0.012-0.011	51.80	46.70
0.011-0.0095	53.50	48.10
0.0095-0.0085	54.60	49.60
0.0085-0.0075	56.20	50.80
0.0075-0.007	57.70	52.30
0.007-0.006	59.30	53.70

ALUMINUM (continued)

Plates and Circles: Thickness 0.250-3 in. 24-60 in. width or diam., 72-240 in. lengths.

Alloy	Plate Base	Circle Base
1100-F, 3003-F	42.40	47.20
5050-F	43.50	48.30
3004-F	44.50	50.20
5052-F	45.10	50.90
6061-T6	45.60	51.70
2024-T4	49.30	56.10
7075-T6*	57.60	64.70

*24-48 in. width or diam., 72-180 in. lengths.

Screw Machine Stock: 30,000 lb base.

Diam. (in.) or across flats*	Round 2011-T3	Round 2017-T4	Hexagonal 2011-T3	Hexagonal 2017-T4
0.125	76.90	73.90	....	....
0.250	62.00	60.20	89.10	76.60
0.375	61.20	60.00	73.50	68.50
0.500	61.20	60.00	73.50	68.50
0.625	61.20	60.00	69.80	64.20
0.750	59.70	58.40	63.60	60.40
0.875	59.70	58.40	63.60	60.40
1.000	59.70	58.40	63.60	60.40
1.125	57.30	56.10	61.50	58.30
1.250	57.30	56.10	61.50	58.30
1.375	57.30	56.10	61.50	58.30
1.500	57.30	56.10	61.50	58.30
1.625	55.00	53.60	....	56.20
1.750	55.00	53.60	60.30	56.20
1.875	55.00	53.60	....	56.20
2.000	55.00	53.60	60.30	56.20
2.125	53.50	52.10	....	....
2.250	53.50	52.10	....	56.20
2.375	53.50	52.10	....	....
2.500	53.50	52.10	....	56.20
2.625	....	50.40	....	....
2.750	51.90	50.40	....	56.20
2.875	....	50.40	....	....
3.000	51.90	50.40	....	56.20
3.125	....	50.40	....	....
3.250	....	50.40	....	....
3.375	....	50.40	....	....

*Selected sizes.

Forging Stock: Round, Class 1, random lengths, diam. 0.375-8 in., "F" temper; 2014, 42.20-55.00; 6061, 41.60-55.00; 7075, 61.60-75.00; 7070, 66.60-80.00.

Pipe: ASA schedule 40, alloy 6063-T6 standard lengths, plain ends, 90,000 lb base, dollars per 100 ft. Nominal pipe sizes: ⅜ in., 18.85; 1 in., 29.75; 1¼ in., 40.30; 1½ in., 48.15; 2 in., 58.30; 4 in., 160.20; 6 in., 287.55; 8 in., 432.70.

Extruded Solid Shapes:

Factor	Alloy 6063-T5	Alloy 6062-T6
9-11	42.70-44.20	51.30-55.50
12-14	42.70-44.20	52.00-56.50
15-17	42.70-44.20	53.20-58.20
18-20	43.20-44.70	55.20-60.80

MAGNESIUM

Sheet and Plate: AZ31B standard grade, 0.32 in., 103.10; .081 in., 77.90; .125 in., 70.40; .188 in., 69.00; .250-2.0 in., 67.90. AZ31B spec. grades, .032 in., 171.30; .081 in., 103.70; .125 in., 98.10; .188 in., 95.70; .250-2.00 in., 93.30. Tread plate, 60-192 in. lengths, 24-72 in. widths; .125 in., 74.90; .188 in., 71.70-72.70; .25-.75 in., 70.60-71.60. Tooling plate, .25-.30 in., 73.00.

Extruded Solid Shapes:

Factor	Com. Grade (AZ31C)	Spec. Grade (AZ31B)
6-8	69.60-72.40	84.60-87.40
12-14	70.70-73.00	85.70-88.00
24-26	75.60-76.30	90.60-91.30
36-38	89.20-90.30	104.20-105.30

NONFERROUS SCRAP

DEALER'S BUYING PRICES

(Cents per pound, New York, in ton lots.)

Copper and Brass: No. 1 heavy copper and wire, 23.75-24.25; No. 2 heavy copper and wire, 22.00-22.50; light copper, 19.75-20.25; No. 1 composition red brass, 17.50-18.00; No. 1 com-

BRASS MILL PRICES

MILL PRODUCTS a

	Sheet, Strip, Plate	Rod	Wire	Seamless Tubes
Copper	52.13b	49.36c	....	52.39
Yellow Brass	45.57	29.28d	46.11	48.48
Low Brass, 80%	48.23	48.17	48.77	51.04
Red Brass, 85%	49.17	49.11	49.71	51.98
Com. Bronze, 90%	50.65	50.59	51.19	53.21
Manganese Bronze	53.44	47.64	58.08	....
Muntz Metal	47.85	43.66	....	....
Naval Brass	49.74	44.05	56.80	52.90
Silicon Bronze	56.77	55.96	56.81	62.13
Nickel Silver, 10%	60.70	63.03	63.03	....
Phos. Bronze	71.09	71.59	71.59	72.77

SCRAP ALLOWANCES e (Based on copper at 29.00c)

	Clean Heavy	Rod Ends	Clean Turnings
Copper	25.000	25.000	24.250
Yellow Brass	19.000	18.750	17.250
Low Brass, 80%	21.250	21.000	20.500
Red Brass, 85%	22.125	21.875	21.375
Com. Bronze, 90%	22.875	22.625	22.125
Manganese Bronze	17.750	17.500	16.875
Muntz Metal	17.875	17.625	17.125
Naval Brass	17.625	17.375	16.875
Silicon Bronze	24.625	24.375	23.625
Nickel Silver, 10%	23.875	23.625	11.937
Phos. Bronze	25.875	25.625	24.625

a. Cents per lb, f.o.b. mill; freight allowed on 500 lb or more. b. Hot-rolled. c. Cold-drawn. d. Free cutting. e. Prices in cents per lb for less than 20,000 lb, f.o.b. shipping point. On lots over 20,000 lb at one time, of any or all kinds of scrap, add 1 cent per lb.

position turnings, 16.50-17.00, new brass clippings, 15.50-16.00; light brass, 12.00-12.50; heavy yellow brass, 13.00-13.50; new brass rod ends, 12.75-13.25; auto radiators, unsweated, 14.00-14.50; cocks and faucets, 14.00-14.50; brass pipe, 14.25-14.75.

Lead: Heavy, 8.50-9.00; battery plates, 4.75-5.25; linotype and stereotype, 10.50-11.00; electrotype, 9.00-9.50; mixed babbitt, 9.50-10.00.

Monel: Clippings, 32.00-34.00; old sheets, 28.00-30.00; turnings, 22.00-24.00; rods, 32.00-34.00.

Nickel: Sheets and clips, 52.00-55.00; rolled anodes, 52.00-55.00; turnings, 37.00-40.00; rod ends, 52.00-55.00.

Zinc: Old zinc, 4.00-4.25; new diecast scrap, 3.75-4.00; old diecast scrap, 2.50-2.75.

Aluminum: Old castings and sheets, 9.25-9.75; clean borings and turnings, 6.25-6.75; segregated low copper clips, 13.00-13.50; segregated high copper clips, 12.00-12.50; mixed low copper clips, 12.75-13.25; mixed high copper clips, 11.50-12.00.

(Cents per pound, Chicago)

Aluminum: Old castings and sheets, 11.00-11.50; clean borings and turnings, 10.00-10.50; segregated low copper clips, 16.50-17.00; segregated high copper clips, 15.50-16.00; mixed low copper clips, 16.00-16.50; mixed high copper clips, 15.00-15.50.

(Cents per pound, Cleveland)

Aluminum: Old castings and sheets, 11.00-11.50; clean borings and turnings, 10.00-10.50; segregated low copper clips, 15.00-15.50; segregated high copper clips, 13.50-14.00; mixed low copper clips, 14.50-15.00; mixed high copper clips, 13.00-13.50.

REFINERS' BUYING PRICES

(Cents per pound, carlots, delivered refinery)

Beryllium Copper: Heavy scrap, 0.020-in. and heavier, not less than 1.5% Be, 55.00; light scrap, 50.00; turnings and borings, 35.00.

Copper and Brass: No. 1 heavy copper and wire, 25.50; No. 2 heavy copper and wire, 24.50; light copper, 22.25; refinery brass (60% copper) per dry copper content, 23.25.

INGOTMAKERS' BUYING PRICES

Copper and Brass: No. 1 heavy copper and wire, 25.50; No. 2 heavy copper and wire, 24.50; light copper, 22.25; No. 1 composition borings, 20.00; No. 1 composition solids, 20.50; heavy yellow brass solids, 14.50; yellow brass turnings, 13.50; radiators, 16.75.

PLATING MATERIALS

(F.o.b. shipping point, freight allowed on quantities)

ANODES

Cadmium: Special or patented shapes, $1.45.

Copper: Flat-rolled, 45.79; oval, 44.00; 5000-10,000 lb; electrodeposited, 38.50, 2000-5000 lb lots; cast, 41.00, 5000-10,000 lb quantities.

Nickel: Depolarized, less than 100 lb, 114.25; 100-499 lb, 112.00; 500-4999 lb, 107.50; 5000-29,999 lb, 105.25, 30,000 lb, 103.00. Carbonized, deduct 3 cents a lb.

Tin: Bar or slab, less than 200 lb, 115.50; 200-499 lb, 114.00; 500-999 lb, 113.50; 1000 lb or more, 113.00.

Zinc: Balls, 17.50; flat tops, 17.50; flats, 20.25; ovals, 19.50, ton lots.

CHEMICALS

Cadmium Oxide: $1.45 per lb in 100-lb drums.

Chromic Acid (flake): 100-2000 lb, 31.00; 2000-10,000 lb, 30.50; 10,000-20,000 lb, 30.00; 20,000 lb or more, 29.50.

Copper Cyanide: 100-200 lb, 65.90; 300-900 lb, 63.90; 1000-19,900 lb, 61.90.

Copper Sulphate: 100-1900 lb, 14.65; 2000-5900 lb, 12.65; 6000-11,900 lb, 12.40; 12,000-22,900 lb, 12.15; 23,000 lb or more, 11.65.

Nickel Chloride: 100 lb, 45.00; 200 lb, 43.00; 300 lb, 42.00; 400-4900 lb, 40.00; 5000-9900 lb, 38.00; 10,000 lb or more, 37.00.

Nickel Sulphate: 5000-22,000 lb, 29.00; 23,000-35,900 lb, 28.50; 36,000 lb or more, 28.00.

Sodium Cyanide (Cyanobrik): 200 lb, 20.80; 400-800 lb 19.80; 1000-19,800 lb, 18.80; 20,000 lb or more, 17.90.

Sodium Stannate: Less than 100 lb, 76.90; 100-600 lb, 67.80; 700-1900 lb, 65.00; 2000-9900 lb, 63.10; 10,000 lb or more, 61.80.

Stannous Chloride (anhydrous): 25 lb, 152.00; 100 lb, 147.10; 400 lb, 144.60; 800-19,900 lb, 103.80; 20,000 lb or more, 97.70.

Stannous Sulphate: Less than 50 lb, 137.30; 50 lb, 107.30; 100-1900 lb, 105.30; 2000 lb or more, 103.30.

Zinc Cyanide: 100-200 lb, 59.00; 300-900 lb, 57.00.

(*Concluded from Page 129*)

but, as yet, no vessel loadings are scheduled for November.

Seattle—Sales continue limited, and yard receipts are small. District mills hold heavy inventories, and the larger buyers are out of the market. Offshore shipments consist of a few scattered small lots moving to Japan. Quoted prices are nominal.

Los Angeles—Two large mills indicate they will soon resume buying, and some optimistic traders are increasing their collections for the first time in months.

San Francisco—Steel mills are operating at a higher rate here, but they are not expected to enter the scrap market on an active scale the rest of this year. Reason: Mill inventories are substantial.

Sees Poor Year for Scrap

This will be one of the poorest years for the scrap industry since the thirties, Myron L. Chase, president, Institute of Scrap Iron & Steel Inc., recently told the Central Pennsylvania Chapter at Reading, Pa.

He predicts: Consumption of all types of purchased scrap, including industrial material, isn't expected to exceed 22 million tons in 1958.

Titanium Prices Reduced

Substantial price reductions on titanium sponge, billet, and bar products were announced last week by Mallory-Sharon Metals Corp., Niles, Ohio.

Sponge, in quantities over 500 lb, to a maximum of 100 Brinell hardness, was cut to $1.62 a pound. Billet stock was lowered to $3.80 a pound (from $4.10); finishing extras for over-all ground material were reduced to 30 cents a pound (from 40 cents); and lathe turnings were reduced to 60 cents a pound (from 80 cents).

Bar prices were cut to $5.10 a pound (from $5.25); these size extra changes were made: Rounds over 2 in. to 4½ in., reduced to 15 cents a pound (from 35 cents); flats and squares over 2 in. to 4 in. to 15 cents a pound (from 35 cents); flats and squares over 1 in. to 2 in. to 50 cents (from 85 cents); over ½ in. to 1 in. to $1 (from $1.60); over 5/16 in. to ½ in. to $1.50 (from $2.10); and less than 5/16 in. to $2 (from $2.60).

All finishing extras were reduced 15 cents a pound.

Pig Iron . . .

Pig Iron Prices, Page 124

Buying interest in the pig iron market is improving. The recovery still lags behind that in steelmaking.

A modest upturn in orders and operations is reported by foundries serving the railroads which are buying equipment a little more actively. Most automotive foundries have resumed operations following strike shutdowns and are expected to place larger orders. Generally, captive foundries are operating at a higher rate than jobbing shops.

Most steel mills are using the bulk of their pig iron output in

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MONEL BARS—30,000 POUNDS 1⅞ Inch Hexagon in Mill Lengths. Attractive Price.

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Over 5,000 new motors in stock, from ¼HP to 300HP. Special low prices.
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PERSONNEL WANTED
for
SMALL MERCHANT & RE-BAR ROLLING MILL AND MELT PLANT

Mill now being built in Fairbanks, Alaska, and will be in operation in April, 1959. Mill will roll mainly reinforcing bars and will produce during the months of April through October, but key personnel will be compensated on an annual basis.

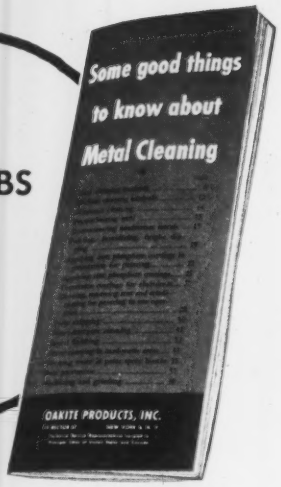
Personnel inquiries requested for melters, chemists, rollers, superintendents, managers and lesser related positions. Please enclose full particulars, including picture and reference in first letter to

ALASKA STEEL MILLS, INC.
7707-7th Ave. So.
Seattle, Washington

Help Wanted

SALESMEN WANTED — Several aggressive men with college training and several years experience selling to machinery manufacturers' and/or LPG equipment. Various locations. Write **SCAIFE COMPANY** (Pittsburgh District) Oakmont, Pa.

WHICH METAL-CLEANING JOBS WOULD YOU LIKE TO IMPROVE?



¶ Are you cleaning metal in the most economical way? *See page 9 of Oakite's FREE booklet on Metal Cleaning.*

¶ Are you cleaning metal the fastest way? *See page 12.*

¶ Do you need room-temperature cleaning combined in one operation with temporary rustproofing? *See pages 12 and 14.*

¶ Do you know the advantages of alkaline pickling? *See page 21.*

¶ Have you compared the values of iron phosphate coating and zinc phosphate coating in preparation for painting? *See pages 22 and 25.*

¶ Can you use a cleaner that removes rust and oil at the same time; often eliminating all need for pickling? *See page 30.*

¶ Do you have trouble stripping epoxy resins, pigment residues, phosphate coatings and under-paint rust? *See page 31.*

¶ How do you clean parts that are too large to be soaked in tanks or sprayed in machines? *See page 31.*

¶ Are you getting full profit out of your finishing barrels? *See page 32.*

¶ What do you do when oversprayed paint neither floats nor sinks in your paint spray booth wash water? *See page 35.*

¶ Do you need better protection against rusting in process or in storage? *See page 37.*

FREE For your copy of "*Some good things to know about Metal Cleaning*" write to Oakite Products, Inc., 34E Rector Street, New York 6, N. Y.

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their own open hearth melts. This is a break for the merchant iron producers since it reduces the competition for foundry business. Steel mills tend to use more hot metal in their melts.

Metallurgical Coke . . .

Metallurgical Coke Prices, Page 128

Coke production in August totaled 4,314,766 net tons, reports the U. S. Bureau of Mines. That's an increase of 9 per cent over July's total of 3,957,230, and is off sharply from the 6,539,600 produced in August, 1957.

The August breakdown: Oven coke, 4,275,546 tons, vs. 3,927,718 in July and 6,382,600 in August last year. Beehive coke, 39,220 tons, vs. 29,512 the preceding month, and 157,000 in the like month of 1957.

Production in the first eight months this year amounted to 33,125,077 net tons (32,814,632 oven coke, 310,445 beehive). In the like period last year, output totaled 52,542,200 tons (50,889,100 oven, 1,653,100 behive).

Stocks of oven coke held by producers at the end of August amounted to 4,006,918 tons, equal to 29.1 days' production. On the same date a year ago, the total was 2,544,906 tons, equal to 12.2 days' production.

Production of oven-coke breeze in August was 289,466 tons, vs. 261,256 in July and 415,300 in August, 1957. Output in the first eight months totaled 2,176,593 tons, vs. 3,351,800 in the like 1957 period.

Canada . . .

Structural steel prices have been upped $4 a ton to $110 by the Algoma Steel Corp. Ltd., Sault Ste. Marie, Ont. Prices on rails, skelp, and some grades of sheets have also been raised. Other Canadian producers have not yet followed.

Algoma has reached agreements with the union on new wage schedules, but no settlement between the union and the Steel Co. of Canada has been reached. Negotiations are being speeded up. Hopes for an early agreement are high.

Production of steel ingots in Canada during the week ended Oct. 16 was 56,784 net tons, equal to 49.9 per cent of rated capacity. Output the week preceding was 54,256 tons, or 47.7 per cent.

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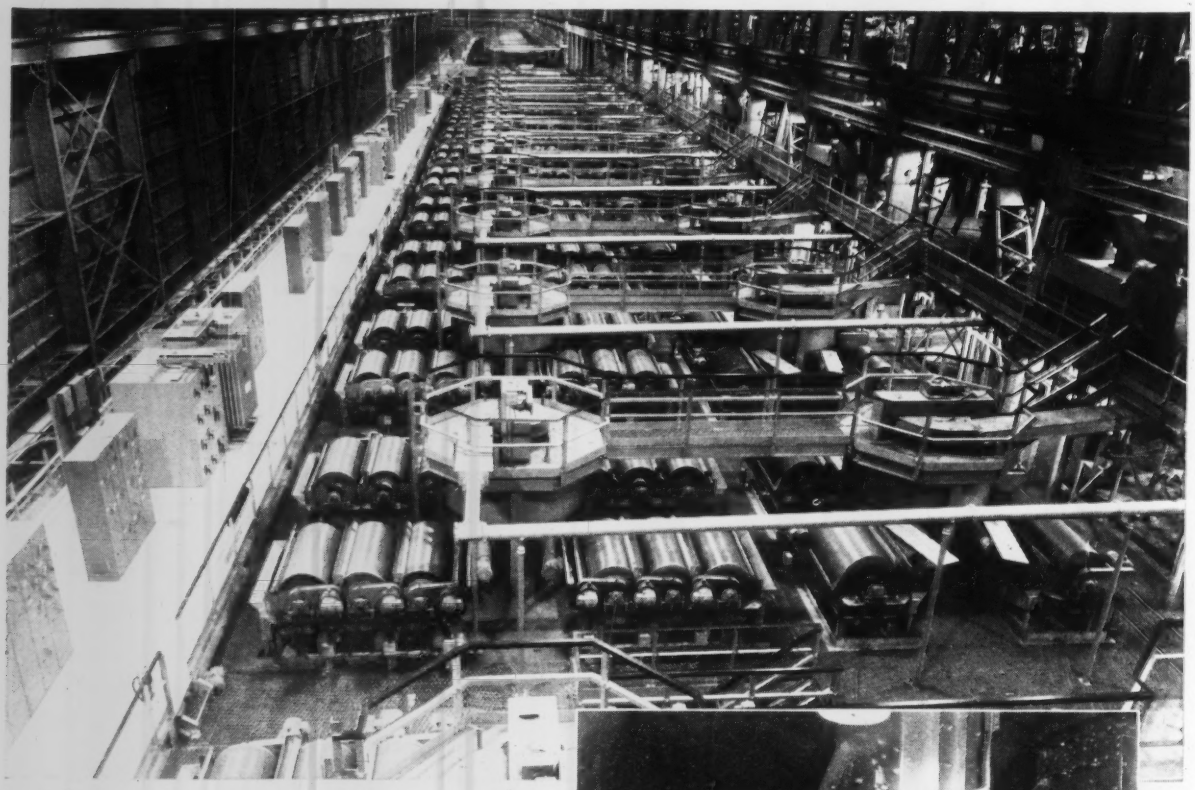
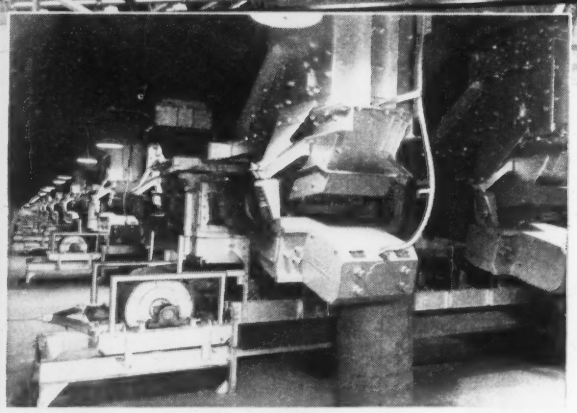
TO FIND THE MAN YOU NEED . . .

Place an advertisement in the "Help Wanted" columns of STEEL's classified pages. Your advertisement will reach the qualified men you need, because STEEL is addressed to highly-trained men in all phases of metalworking

STEEL
The Metalworking Weekly



Jeffrey magnetic separators help raise iron content of pellets to 64%.



Jeffrey vibrating feeders keep ore on the move.

New Taconite Plant sets 24-hour, year-round pace!

IRON YIELD of the Mesabi Range is being greatly extended by a new plant which can, *every day*, turn about 63,000 long tons of taconite ore into approximately 20,000 tons of pellets bearing up to 64% iron. Efficient, trouble-free Jeffrey equipment is an important part of the vast and highly mechanized operation which makes this processing economically practical.

Jeffrey Magnetic Separators — 216 ball mill roughers and finishing separators are used in concentrator operations. After proper settings are made, feed may vary from zero to maximum capacity without further adjustment. Separators furnished in both permanent and electro types.

Jeffrey Vibrating Feeders — 48 heavy duty 5DTS units feed coarse ore from surge bins to cone crushers and screens. 324 Type 4DTH units feed fine ore to rod mills. 48 Type 4DTS feeders handle hot pellets. Balanced vibration assures quiet operation, definite control, easier installation, low operating and maintenance costs.

In all types of mining and processing of solids, carefully engineered, precision built Jeffrey machinery and components provide long, dependable service. Write for Catalog 910. The Jeffrey Manufacturing Company, 889 North Fourth Street, Columbus 16, Ohio.

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To anneal it better... faster...

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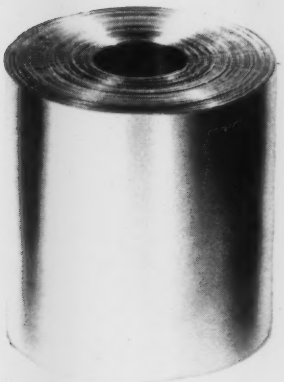
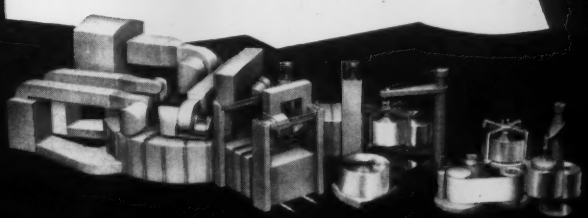


...recoil for processing

Lee Wilson's revolutionary new coil opening system exposes as much as 400 times more coil area to furnace heat. This obviously means faster heating with substantially better control...a better annealed product, and production rates that reduce process inventory at annealing stations by 80 percent. Be sure you have all the facts on the amazing new Opened Coil Annealer before you purchase additional annealing furnace equipment.



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By mounting roll necks on Timken® tapered roller bearings, a rapidly increasing number of steel mills keep production high, downtime low, and hold bearing cost per ton of steel rolled at rock bottom. Here's why:

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3. **SIMPLIFIED LUBRICATION.** You don't need complicated lubricating systems when you use Timken roll neck bearings. They permit use of simpler, less expensive grease lubrication.

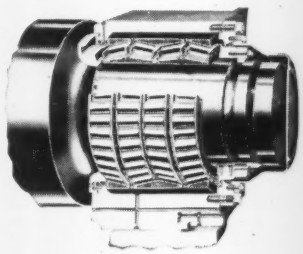
4. **HIGHER LOAD RATINGS.** Balanced proportion design provides up to 40% greater bearing capacity than previous designs for a given mill roll size.

5. **SPECIAL THRUST BEARINGS ELIMINATED.** Because Timken bearings are designed to take *both* radial and thrust loads, they save you the extra cost of special thrust bearings.

6. **STEEL LOSS ENDED IN MILL STOPS AND STARTS.** With mill roll necks mounted on Timken tapered roller bearings, you can start your mills under full load—and end unnecessary loss of steel.

7. **FASTER MILL ROLLING SPEEDS.** Because Timken bearings are designed with true rolling motion and practically eliminate friction, your mills can roll at higher speeds than otherwise possible.

You can get all these advantages in existing or new equipment when you specify Timken tapered roller bearings for your back-up and work rolls. Get complete details from our specialists. Just call or write The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable: "TIMROSCO".



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